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ABSTRACT

This publication provides program standards for diploma and degree instrumentation technology programs. Fifteen categories of standards are presented. Each category is divided into one or more subcategories, and each subcategory has the following components: standard statement, explanatory comment, evaluative criteria, exhibits. Standards in the areas of foundations, admissions, and program structure are presented separately for diploma and degree programs; other standards apply to both levels. Foundations standards subcategories are as follows: philosophy, purpose, goals, program objectives, availability, and evaluation. Admissions standards include the following: admission requirements, provisional admission requirements, recruitment, and evaluation and planning. Program structure standards address these areas: curriculum design, program numbering system, program consistency, exit points, credentials, course code, course consistency, course sequence, electives, and course transferability. Standards for program evaluation and planning focus on these areas: evaluation; planning; enrollment, graduation, and placement levels; attrition levels; and student performance. Instructional program standards are provided in the following areas: course content; course objectives; course instruction; occupation-based instruction; evaluation of students; grading system; laboratory management; equipment, supplies, and materials; and physical facility. The remaining standards deal with the following categories: academic skills (academic requirements); employability skills (job acquisition, job retention and advancement); staff (faculty qualifications and responsibilities); advisory committee (function, membership, meetings); special needs (commitment); equity (commitment); and health and safety (commitment). (YLB)

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INSTRUMENTATION TECHNOLOGY PROGRAM STANDARDS

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INSTRUMENTATION TECHNOLOGY PROGRAM STANDARDS

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The development of Instrumentation Technology program standards is a significant step for technical education and economic development in Georgia. These standards represent a statewide commitment to provide consistent, quality technical education, to equip our graduates with the background and skills necessary to meet their individual occupational needs, and to meet the currently expanding needs of the Georgia employment market.

Many people have contributed time, effort, and expertise to the standards development project. The Georgia Board of Technical and Adult Education, the Board's Standards Committee, the standards development committee, and the project staff have worked diligently to make the establishment of these standards a reality. Robert Mabry, Doug Bolen, and Patt Stonehouse of the Georgia Department of Technical and Adult Education have provided and direction for the project. Walter Sessoms, in his past role as Board's Standards Committee chairman, contributed leadership, motivation, and insight to the standards project. James Crisp, Coordinator of Educational Programs, has provided invaluable assistance in planning and monitoring the project.

These efforts have been sustained by the commitment of the Board's Standards Committee whose members each brought special concern and expertise to the standards development project. William Wiley, present committee chair, has assumed the leadership role with the energy and integrity that will assure successful progress of the standards development process.

We extend sincere thanks to each member of the Board's Standards Committee below.

Fred Chamberlain
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Jean Hartin
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Judy Hulsey
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Macon

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Gene Hunt

Eugene Hunt, Chairperson
Georgia Board of Technical and Adult Education

Ken Breeden, Commissioner
Georgia Department of Technical and Adult Education

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HOW TO USE THIS MANUAL

Tab Dividers

This document is divided into sections, each section being divided from the others by means of a section-identifier tab. Each section contains standard(s) pertaining to a particular category of standards.

Table of Contents

The Table of Contents lists the tabbed categories of standards plus the title and identifier number for each standard within each tabbed section.

Numbering System

Each standard has a unique six-digit identifier number. The number is divided into three sets of two-digit couplets, each set being divided by a dash.

Example: 03-04-05...

03 indicates standard document #3 (i.e., The Electronic Engineering Standards document).

04 indicates section #4 in the document (i.e., The Program Evaluation and Planning standards section).

05 indicates standard #5 within section four (i.e., The Student Performance standard within the Program Evaluation and Planning standards section).

Finding a Standard

Standard identifier numbers appear in the upper right-hand corner of each page. To find a given standard, refer to the Table of Contents to find the identifier number of the standard of interest, select the appropriate section tab, and find the desired standard within the selected tab section.

Amendments

Registered manual holders are instructed to keep their manuals updated as amendments are disseminated.

Document Transmittal

All new or revised documents are sent to the registered holder of the manual and are recorded on a Manuals Document Transmittal Form. Transmittals are numbered consecutively, and instructions for use are printed on the form.

Amendment Record

The registered holder of the manual records the receipt of all Document Transmittals on the Amendment Record. This record and instructions are found on the reverse side of the manual title page.

Standard Number:
60-01-01

INSTRUMENTATION TECHNOLOGY

FOUNDATIONS
(Philosophy)

Standard Statement

A philosophy statement is developed expressing the beliefs and values that govern the content and conduct of the Instrumentation Technology program.

Explanatory Comment

A statewide program philosophy statement is developed and provided for the Instrumentation Technology program. The statewide philosophy statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

The Instrumentation Technology program philosophy statement expresses the fundamental educational and occupational principles that guide the instructional process.

Evaluative Criteria

The Instrumentation Technology program has a clearly defined, written philosophy statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology program philosophy statement is developed by the program faculty, the administration, and the program advisory committee.

The philosophy of the Instrumentation Technology program is in accordance with the philosophy of the Georgia Board of Technical and Adult Education and reflects the beliefs, values, and attitudes of the institution, the instructional field, the community, and the employment market.

The philosophy of the Instrumentation Technology program determines the unique role of the program in meeting the technical educational needs of the students, the community, and the employment market.

The philosophy of the Instrumentation Technology program reflects a desire to achieve educational excellence.

Standard Number:
60-01-01

INSTRUMENTATION TECHNOLOGY

The philosophy of the Instrumentation Technology program reflects a commitment to meet the needs of business and industry.

The philosophy of the Instrumentation Technology program includes a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

The philosophy statement of the Instrumentation Technology program is approved by the administration of the institution.

Standard Number:
60-01-01

INSTRUMENTATION TECHNOLOGY

PHILOSOPHY

The basic beliefs, attitudes, and concepts that are the foundation of the Instrumentation Technology program are expressed in the following statements.

Instrumentation Technology is a program of study which is compatible with the policies of the Georgia Board of Technical and Adult Education and encourages each Instrumentation Technology program student to benefit and contribute as a partner in the economic development and stability of Georgia. The philosophy of the Instrumentation Technology program is founded on the value attributed to individual students, the instrumentation technology profession, and technical education.

The Instrumentation Technology program of study is consistent with the philosophy and purpose of the institution. The program provides academic foundations in communications, mathematics, and human relations as well as technical fundamentals. Program graduates are trained in the underlying fundamentals of instrumentation technology and are well prepared for employment and subsequent upward mobility.

The Instrumentation Technology program is a technical program that provides the knowledge and skills to qualify participants for the instrumentation technology profession. This profession is presently experiencing growth and the employment market is experiencing shortages of trained instrumentation technicians.

The program structure acknowledges individual differences and provides opportunities for students to seek fulfillment of their respective educational goals. The program does not discriminate on the basis of race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.

To assist each student to attain his or her respective potential within the program, both the instructor and the student incur an obligation in the learning process. The instructor is a manager of instructional resources and organizes instruction in a manner which promotes learning. The student assumes responsibility for learning by actively participating in the learning process.

INSTRUMENTATION TECHNOLOGY

Important attributes for success of program graduates are analytical thinking, problem solving, and the ability to apply technology to the work requirement. Instrumentation technology is a dynamic profession; therefore, careful attention to current curriculum and up-to-date instructional equipment is required. The program promotes the concept of change as the technology evolves. The need for nurturing the spirit of involvement in lifelong professional learning is paramount in the instrumentation technology profession.

Standard Number:
60-01-02

INSTRUMENTATION TECHNOLOGY

FOUNDATIONS
(Purpose)

Standard Statement

A purpose statement delineating the instructional services which the Instrumentation Technology program provides is developed and implemented.

Explanatory Comment

A statewide purpose statement is developed and provided for the Instrumentation Technology program. The statewide purpose statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

A major purpose of the Instrumentation Technology program is to meet community and employment market needs for education in instrumentation technology.

Evaluative Criteria

The Instrumentation Technology program has a clearly defined, written purpose statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology program purpose statement is developed by the program faculty, the administration, and the program advisory committee.

The purpose of the Instrumentation Technology program is in accordance with the purpose of the Georgia Board of Technical and Adult Education and the institution.

The purpose of the Instrumentation Technology program reflects the values and beliefs expressed in the program philosophy.

The purpose of the Instrumentation Technology program includes a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

The purpose statement of the Instrumentation Technology program is approved by the administration of the institution.

Standard Number:
60-01-02

INSTRUMENTATION TECHNOLOGY

PURPOSE

The purpose of the Instrumentation Technology program is to provide educational opportunities to individuals that will enable them to obtain the knowledge, skills, and attitudes necessary to succeed as instrumentation technicians.

The Instrumentation Technology program provides educational opportunities regardless of race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.

The Instrumentation Technology program graduates are prepared to function as instrumentation technicians in positions requiring calibration of instruments and instrumented process control. Program graduates are to be competent in the general areas of communications, math, and interpersonal relations. Program graduates are to be competent to perform basic technical functions including process control, instrumentation for measurement and control, repair and calibration of instruments, interpretation of technical materials, configuration of microprocesses to specific system requirements, and certification of standards.

Standard Number:
60-01-03

INSTRUMENTATION TECHNOLOGY

FOUNDATIONS
(Goals)

Standard Statement

A program goals statement focuses the efforts of the Instrumentation Technology program.

Explanatory Comment

A statewide goals statement is developed and provided for the Instrumentation Technology program. The statewide program goals statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

Goals are broad statements of intent that delineate the achievements the Instrumentation Technology program seeks to attain. Goals are stated in non-quantifiable terms.

Evaluative Criteria

The Instrumentation Technology program has a clearly defined, written goals statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology program goals statement is developed by the program faculty, the administration, and the program advisory committee.

The goals of the Instrumentation Technology program are in accordance with the philosophy and purpose of the program.

The goals of the Instrumentation Technology program reflect a desire to provide exemplary occupational/technical education.

The goals of the Instrumentation Technology program are the basis for the development of program objectives.

The goals of the Instrumentation Technology program include a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

Standard Number:
60-01-03

INSTRUMENTATION TECHNOLOGY

The goals statement of the Instrumentation Technology program is approved by the administration of the institution.

Standard Number:
60-01-03

INSTRUMENTATION TECHNOLOGY

GOALS
(Process)

The goals of the Instrumentation Technology program are to:

1. Provide education which acknowledges individual differences and respects the right of individuals to seek fulfillment of educational needs.
2. Provide an environment which encourages the individual to benefit and contribute as a partner in the economic progress, development, and stability of Georgia.
3. Provide education which develops the potential of each student to become a productive, responsible, and upwardly mobile member of society.
4. Provide quality instrumentation technology education in an atmosphere that fosters interest in and enthusiasm for learning.
5. Prepare graduates to function as accountable and responsible members within their field of endeavor.
6. Prepare graduates to function as safe and competent practitioners in the instrumentation technology field.
7. Prepare program graduates with the highest level of competence possible given the constraints of the interests and ability levels of the individual.
8. Provide educational and related services without regard to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.
9. Foster employer participation, understanding, and confidence in the instructional process and the competence of Instrumentation Technology program graduates.
10. Provide guidance to Instrumentation Technology program students to assist them in pursuing educational opportunities that maximize their professional potential.
11. Encourage program graduates to recognize and to act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

INSTRUMENTATION TECHNOLOGY

FOUNDATIONS
(Program Objectives)

Standard Statement

An objectives statement based on established program goals is developed for the Instrumentation Technology program.

Explanatory Comment

A statewide objectives statement is developed and provided for the Instrumentation Technology program. The statewide program objectives statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

Program objectives are desired program outcomes stated in measurable, temporal, and operational terms.

Evaluative Criteria

The Instrumentation Technology program has a clearly defined, written objectives statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology program objectives statement is developed by the program faculty, administration, and the program advisory committee.

The objectives of the Instrumentation Technology program stress learning outcomes, efficiency, enrollment, public relations, and other outcomes that impact on program quality.

A major objective of the Instrumentation Technology program is student achievement of identified exit point competencies.

The objectives of the Instrumentation Technology program include a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

The objectives statement of the Instrumentation Technology program is approved by the administration of the institution.

INSTRUMENTATION TECHNOLOGY

OBJECTIVES
(Process)

The objectives of the Instrumentation Technology program are to:

1. Provide current curriculum, instructional materials, and equipment (in accordance with available funding) which teach knowledge, skills, and attitudes appropriate to industry needs.

2. Provide educational facilities which foster learning and provide safe, healthy environments available and accessible to all students who can benefit from the program.

3. Provide academic instruction which supports effective learning within the program and which enhances professional performance on the job.

4. Provide employability skills which foster work attitudes and work habits that will enable graduates of the program to perform as good employees.

5. Nurture the desire for learning so that graduates will pursue their own continuing education as a lifelong endeavor.

6. Provide an educational atmosphere which promotes a positive self-image and a sense of personal well-being.

7. Provide education that fosters development of good safety habits.

8. Provide admission, educational, and placement services without regard to race, color, national origin, religion, sex, age, or handicapping condition.

9. Provide information to the public regarding the program that will facilitate recruitment and enrollment of students.

10. Promote good public relations via contacts and regular communications with business, industry, and the public sector.

11. Promote faculty and student rapport and communications to enhance student success in the program.

Standard Number:
60-01-05

INSTRUMENTATION TECHNOLOGY

FOUNDATIONS
(Availability)

Standard Statement

Written philosophy, purpose, goals, and objectives statements for the Instrumentation Technology program are made available to the staff of the institution and the general public.

Explanatory Comment

Published Instrumentation Technology program philosophy and purpose statements are important recruitment tools that help students to select programs that meet their needs.

Evaluative Criteria

The philosophy and purpose statements of the Instrumentation Technology program are published and made available to the staff of the institution and the general public.

Written goals and objectives are available for the Instrumentation Technology program.

Instrumentation Technology program philosophy, purpose, goals, and objectives statements are used by student services personnel to aid in recruiting and placing students.

Standard Number:
60-01-06

INSTRUMENTATION TECHNOLOGY

FOUNDATIONS
(Evaluation)

Standard Statement

The philosophy, purpose, goals, and objectives of the Instrumentation Technology program are evaluated.

Explanatory Comment

The evaluation of the Instrumentation Technology program philosophy, purpose, goals, and objectives assists the program in meeting student, community, and employment market needs.

Evaluative Criteria

Formal evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology program is performed annually and documents input from the program faculty, the administration, and the program advisory committee.

Evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology program is conducted to assure congruence with changing community and employment market needs and Georgia Board of Technical and Adult Education philosophy and purpose statements.

Evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology program assesses congruence with the requirements of the designated accrediting agency(ies).

Evaluation processes are designed to consider state evaluation processes and requirements and to verify that the philosophy, purpose, goals, and objectives of the Instrumentation Technology program are being fulfilled.

Evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology program results in revision, as needed.

Standard Number:
61-01-01

INSTRUMENTATION TECHNOLOGY, DEGREE

FOUNDATIONS
(Philosophy)

Standard Statement

A philosophy statement is developed expressing the beliefs and values that govern the content and conduct of the Instrumentation Technology associate degree program.

Explanatory Comment

A statewide program philosophy statement is developed and provided for the Instrumentation Technology associate degree program. The statewide philosophy statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

The Instrumentation Technology associate degree program philosophy statement expresses the fundamental educational and occupational principles that guide the instructional process.

Evaluative Criteria

The Instrumentation Technology associate degree program has a clearly defined, written philosophy statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology associate degree program philosophy statement is developed by the program faculty, the administration, and the program advisory committee.

The philosophy of the Instrumentation Technology associate degree program is in accordance with the philosophy of the Georgia Board of Technical and Adult Education and reflects the beliefs, values, and attitudes of the institution, the instructional field, the community, and the employment market.

The philosophy of the Instrumentation Technology associate degree program determines the unique role of the program in meeting the technical educational needs of the students, the community, and the employment market.

Standard Number:
61-01-01

INSTRUMENTATION TECHNOLOGY, DEGREE

The philosophy of the Instrumentation Technology associate degree program reflects a desire to achieve educational excellence.

The philosophy of the Instrumentation Technology associate degree program reflects a commitment to meet the needs of business and industry.

The philosophy of the Instrumentation Technology associate degree program includes a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

The philosophy statement of the Instrumentation Technology associate degree program is approved by the administration of the institution.

INSTRUMENTATION TECHNOLOGY, DEGREE

PHILOSOPHY

The basic beliefs, attitudes, and concepts that are the foundation of the Instrumentation Technology associate degree program are expressed in the following statements.

The Instrumentation Technology associate degree program is a program of study which is compatible with the policies of the Georgia Board of Technical and Adult Education and encourages each Instrumentation Technology associate degree program student to benefit and contribute as a partner in the economic development and stability of Georgia. The philosophy of the Instrumentation Technology associate degree program is founded on the value attributed to individual students, the instrumentation technology profession, and technical education.

The Instrumentation Technology associate degree program of study is consistent with the philosophy and purpose of the institution. The program provides academic foundations in communications, mathematics, and human relations as well as technical fundamentals. Program graduates are trained in the underlying fundamentals of instrumentation technology and are well prepared for employment and subsequent upward mobility.

The Instrumentation Technology associate degree program is a technical program that provides the knowledge and skills to qualify participants for the instrumentation technology profession. This profession is presently experiencing growth and the employment market is experiencing shortages of trained instrumentation technicians.

The program structure acknowledges individual differences and provides opportunities for students to seek fulfillment of their respective educational goals. The program does not discriminate on the basis of race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.

To assist each student to attain his or her respective potential within the program, both the instructor and the student incur an obligation in the learning process. The instructor is a manager of instructional resources and organizes instruction in a manner which promotes learning. The student assumes responsibility for learning by actively participating in the learning process.

INSTRUMENTATION TECHNOLOGY, DEGREE

Important attributes for success of program graduates are analytical thinking, problem solving, and the ability to apply technology to the work requirement. Instrumentation technology is a dynamic profession; therefore, careful attention to current curriculum and up-to-date instructional equipment is required. The program promotes the concept of change as the technology evolves. The need for nurturing the spirit of involvement in lifelong professional learning is paramount in the instrumentation technology profession.

Standard Number:
61-01-02

INSTRUMENTATION TECHNOLOGY, DEGREE

FOUNDATIONS
(Purpose)

Standard Statement

A purpose statement delineating the instructional services which the Instrumentation Technology associate degree program provides is developed and implemented.

Explanatory Comment

A statewide purpose statement is developed and provided for the Instrumentation Technology associate degree program. The statewide purpose statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

A major purpose of the Instrumentation Technology associate degree program is to meet community and employment market needs for education in instrumentation technology.

Evaluative Criteria

The Instrumentation Technology associate degree program has a clearly defined, written purpose statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology associate degree program purpose statement is developed by the program faculty, the administration, and the program advisory committee.

The purpose of the Instrumentation Technology associate degree program is in accordance with the purpose of the Georgia Board of Technical and Adult Education and the institution.

The purpose of the Instrumentation Technology associate degree program reflects the values and beliefs expressed in the program philosophy.

The purpose of the Instrumentation Technology associate degree program includes a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

INSTRUMENTATION TECHNOLOGY, DEGREE

The purpose statement of the Instrumentation Technology associate degree program is approved by the administration of the institution.

Standard Number:
61-01-02

INSTRUMENTATION TECHNOLOGY, DEGREE

PURPOSE

The purpose of the Instrumentation Technology associate degree program is to provide educational opportunities to individuals that will enable them to obtain the knowledge, skills, and attitudes necessary to succeed as instrumentation technicians.

The Instrumentation Technology associate degree program provides educational opportunities regardless of race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.

The Instrumentation Technology associate degree program graduates are prepared to function as instrumentation technicians in positions requiring calibration of instruments and instrumented process control. Program graduates are to be competent in the general areas of communications, math, and interpersonal relations. Program graduates are to competent to perform basic technical functions including process control, instrumentation for measurement and control, repair and calibration of instruments, interpretation of technical materials, configuration of microprocesses to specific system requirements, and certification of standards.

Standard Number:
61-01-03

INSTRUMENTATION TECHNOLOGY, DEGREE

FOUNDATIONS
(Goals)

Standard Statement

A program goals statement focuses the efforts of the Instrumentation Technology associate degree program.

Explanatory Comment

A statewide goals statement is developed and provided for the Instrumentation Technology associate degree program. The statewide program goals statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

Goals are broad statements of intent that delineate the achievements the Instrumentation Technology associate degree program seeks to attain. Goals are stated in non-quantifiable terms.

Evaluative Criteria

The Instrumentation Technology associate degree program has a clearly defined, written goals statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology associate degree program goals statement is developed by the program faculty, the administration, and the program advisory committee.

The goals of the Instrumentation Technology associate degree program are in accordance with the philosophy and purpose of the program.

The goals of the Instrumentation Technology associate degree program reflect a desire to provide exemplary occupational/technical education.

The goals of the Instrumentation Technology associate degree program are the basis for the development of program objectives.

Standard Number:
61-01-03

INSTRUMENTATION TECHNOLOGY, DEGREE

The goals of the Instrumentation Technology associate degree program include a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

The goals statement of the Instrumentation Technology associate degree program is approved by the administration of the institution.

INSTRUMENTATION TECHNOLOGY, DEGREE

GOALS
(Process)

The goals of the Instrumentation Technology associate degree program are to:

1. Provide education which acknowledges individual differences and respects the right of individuals to seek fulfillment of educational needs.
2. Provide an environment which encourages the individual to benefit and contribute as a partner in the economic progress, development, and stability of Georgia.
3. Provide education which develops the potential of each student to become a productive, responsible, and upwardly mobile member of society.
4. Provide quality instrumentation technology education in an atmosphere that fosters interest in and enthusiasm for learning.
5. Prepare graduates to function as accountable and responsible members within their field of endeavor.
6. Prepare graduates to function as safe and competent practitioners in the instrumentation technology field.
7. Prepare program graduates with the highest level of competence possible given the constraints of the interests and ability levels of the individual.
8. Provide educational and related services without regard to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.
9. Foster employer participation, understanding, and confidence in the instructional process and the competence of Instrumentation Technology associate degree program graduates.
10. Provide guidance to Instrumentation Technology associate degree program students to assist them in pursuing educational opportunities that maximize their professional potential.

INSTRUMENTATION TECHNOLOGY, DEGREE

11. Encourage program graduates to recognize and to act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Standard Number:
61-01-04

INSTRUMENTATION TECHNOLOGY, DEGREE

FOUNDATIONS
(Program Objectives)

Standard Statement

An objectives statement based on established program goals is developed for the Instrumentation Technology associate degree program.

Explanatory Comment

A statewide objectives statement is developed and provided for the Instrumentation Technology associate degree program. The statewide program objectives statement may be augmented at the local level so that the unique circumstances of the community may be accommodated.

Program objectives are desired program outcomes stated in measurable, temporal, and operational terms.

Evaluative Criteria

The Instrumentation Technology associate degree program has a clearly defined, written objectives statement that is reviewed by the program faculty, the administration, and the program advisory committee.

Any addition to the Instrumentation Technology associate degree program objectives statement is developed by the program faculty, administration, and the program advisory committee.

The objectives of the Instrumentation Technology associate degree program stress learning outcomes, efficiency, enrollment, public relations, and other outcomes that impact on program quality.

A major objective of the Instrumentation Technology associate degree program is student achievement of identified exit point competencies.

The objectives of the Instrumentation Technology associate degree program include a nondiscrimination statement pertaining to race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, and economic disadvantage.

Standard Number:
61-01-04

INSTRUMENTATION TECHNOLOGY, DEGREE

The objectives statement of the Instrumentation Technology associate degree program is approved by the administration of the institution.

Standard Number:
61-01-04

INSTRUMENTATION TECHNOLOGY, DEGREE

OBJECTIVES
(Process)

The objectives of the Instrumentation Technology associate degree program are to:

1. Provide current curriculum, instructional materials, and equipment (in accordance with available funding) which teach knowledge, skills, and attitudes appropriate to industry needs.

2. Provide educational facilities which foster learning and provide safe, healthy environments available and accessible to all students who can benefit from the program.

3. Provide academic instruction which supports effective learning within the program and which enhances professional performance on the job.

4. Provide employability skills which foster work attitudes and work habits that will enable graduates of the program to perform as good employees.

5. Nurture the desire for learning so that graduates will pursue their own continuing education as a lifelong endeavor.

6. Provide an educational atmosphere which promotes a positive self-image and a sense of personal well-being.

7. Provide education that fosters development of good safety habits.

8. Provide admission, educational, and placement services without regard to race, color, national origin, religion, sex, age, or handicapping condition.

9. Provide information to the public regarding the program that will facilitate recruitment and enrollment of students.

10. Promote good public relations via contacts and regular communications with business, industry, and the public sector.

11. Promote faculty and student rapport and communications to enhance student success in the program.

Standard Number:
61-01-05

INSTRUMENTATION TECHNOLOGY, DEGREE

FOUNDATIONS
(Availability)

Standard Statement

Written philosophy, purpose, goals, and objectives statements for the Instrumentation Technology associate degree program are made available to the staff of the institution and the general public.

Explanatory Comment

Published Instrumentation Technology associate degree program philosophy and purpose statements are important recruitment tools that help students to select programs that meet their needs.

Evaluative Criteria

The philosophy and purpose statements of the Instrumentation Technology associate degree program are published and made available to the staff of the institution and the general public.

Written goals and objectives are available for the Instrumentation Technology associate degree program.

Instrumentation Technology associate degree program philosophy, purpose, goals, and objectives statements are used by student services personnel to aid in recruiting and placing students.

Standard Number:
61-01-06

INSTRUMENTATION TECHNOLOGY, DEGREE

FOUNDATIONS
(Evaluation)

Standard Statement

The philosophy, purpose, goals, and objectives of the Instrumentation Technology associate degree program are evaluated.

Explanatory Comment

The evaluation of the Instrumentation Technology associate degree program philosophy, purpose, goals, and objectives assists the program in meeting student, community, and employment market needs.

Evaluative Criteria

Formal evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology associate degree program is performed annually and documents input from the program faculty, the administration, and the program advisory committee.

Evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology associate degree program is conducted to assure congruence with changing community and employment market needs and Georgia Board of Technical and Adult Education philosophy and purpose statements.

Evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology associate degree program assesses congruence with the requirements of the designated accrediting agency(ies).

Evaluation processes are designed to consider state evaluation processes and requirements and to verify that the philosophy, purpose, goals, and objectives of the Instrumentation Technology associate degree program are being fulfilled.

Evaluation of the philosophy, purpose, goals, and objectives of the Instrumentation Technology associate degree program results in revision, as needed.

Standard Number:
60-02-01

INSTRUMENTATION TECHNOLOGY

ADMISSIONS
(Admission Requirements)

Standard Statement

Statewide admission requirements are implemented for the Instrumentation Technology program.

Explanatory Comment

Admission refers to regular admission into a diploma granting program.

Statewide program admission requirements consider state and national occupational licensing and certifying requirements, where applicable.

The institution develops and implements clearly stated program admissions policies and procedures.

Evaluative Criteria

The requirements for admission to the Instrumentation Technology program are:
a) attainment of 16 or more years of age;
b) achievement of the 9th grade level in reading, English, and math as shown on a statistically validated test or minimum SAT scores of 350 verbal and 350 math; and
d) completion of application and related procedures.

Admission of transfer students to the Instrumentation Technology program is contingent upon their meeting the following requirements:
a) regular admission and good standing at a regionally accredited diploma or degree granting institution; and
b) proper completion of application and related procedures.

Standard Number:
60-02-02

INSTRUMENTATION TECHNOLOGY

ADMISSIONS
(Provisional Admission Requirements)

Standard Statement

Statewide provisional admission requirements are implemented for the Instrumentation Technology program.

Explanatory Comment

Provisional admission is granted to qualified students who do not meet the regular admission requirements of the program.

Provisionally admitted students are allowed to take developmental studies courses and/or certain occupational courses as designated in the course sequence standard.

The institution develops and implements clearly stated policies and procedures for entry into diploma programs on a provisional basis.

Evaluative Criteria

Provisional admission to the Instrumentation Technology program is afforded those students who do not meet program admission requirements but who meet provisional admission requirements.

The requirements for provisional admission to the Instrumentation Technology program are:

a) attainment of 16 or more years of age;

b) achievement of the 8th grade level in reading, English, and math as shown on a statistically validated test or recommendation by program faculty and designated admissions personnel on the basis of interview and assessment of student potential; and

c) completion of application and related procedures.

All Instrumentation Technology program students initially admitted on a provisional basis meet regular admission requirements prior to graduation.

Standard Number:
60-02-02

INSTRUMENTATION TECHNOLOGY

Provisionally admitted students whose English, math, and/or reading achievement levels do not meet regular program admission requirements are required to enroll in developmental studies courses approved by the Georgia Board of Technical and Adult Education.

Standard Number:
60-02-03

INSTRUMENTATION TECHNOLOGY

ADMISSIONS
(Recruitment)

Standard Statement

The Instrumentation Technology program recruitment materials and practices are in the best interests of the students, institution, community, and employment market.

Explanatory Comment

The recruitment effort makes potential students aware of the services provided by the Instrumentation Technology program and the institution.

The recruitment effort seeks to serve the economic development of the community by affording opportunities to prospective students.

The institution develops and implements a systematic, overall recruitment effort designed to assist students in meeting their occupational needs.

Evaluative Criteria

The recruitment effort assists in maintaining and/or increasing the Instrumentation Technology program and institution enrollments.

The recruitment effort of the Instrumentation Technology program includes participation in or assistance with:

a) development and dissemination of informational materials;
b) recruitment activities with other programs within the institution;
c) communication with potential students through contact with employers, secondary schools, organizations, the program advisory committee, and others;
d) promotion of Instrumentation Technology program awareness among individuals and groups; and
e) consideration of the industrial and business needs of the community and employment market.

All recruitment materials and practices are ethical, equitable, and accurate in the depiction of the institution, the Instrumentation Technology program, and the potential benefits of program completion.

Standard Number:
60-02-03

INSTRUMENTATION TECHNOLOGY

A written description of the admission requirements and procedures, tuition fees, and other costs of the Instrumentation Technology program is made available to potential students.

Standard Number:
60-02-04

INSTRUMENTATION TECHNOLOGY

ADMISSIONS
(Evaluation and Planning)

Standard Statement

An evaluation of the admission requirements of the Instrumentation Technology program is conducted.

Explanatory Comment

The admission requirements of the Instrumentation Technology program are compatible with the admissions policies and procedures of the institution.

Evaluative Criteria

Instrumentation Technology program admission requirements are evaluated annually to assure compliance with Georgia Board of Technical and Adult Education policies and standards and designated accrediting agency requirements.

The administration, with input from the program faculty and advisory committee, conducts an annual evaluation of Instrumentation Technology program admission requirements to assess their adequacy in meeting the needs of the students, community, and employment market.

The evaluation results are used to modify the admissions procedures of the institution and to suggest Instrumentation Technology program admission changes to the Georgia Board of Technical and Adult Education, as needed.

Standard Number:
61-02-01

INSTRUMENTATION TECHNOLOGY, DEGREE

ADMISSIONS
(Admission Requirements)

Standard Statement

Statewide admission requirements are implemented for the Instrumentation Technology associate degree program.

Explanatory Comment

Admission refers to regular admission into an associate degree granting program.

Statewide program admission requirements consider state and national occupational licensing and certifying requirements, where applicable.

The institution develops and implements clearly stated associate degree program admissions policies and procedures.

Evaluative Criteria

The requirements for admission to the Instrumentation Technology associate degree associate degree program are:

a) attainment of 16 or more years of age;
b) documentation of high school graduation or satisfaction of High School Equivalency Certificate requirements;
c) achievement of SAT scores of no less than math 400 and verbal 380 or equivalent scores on a statistically validated test; and
d) completion of application and related procedures.

Admission of transfer students to the Instrumentation Technology associate degree program is contingent upon their meeting the following requirements:

a) regular admission and good standing at a regionally accredited diploma or degree granting institution; and
b) proper completion of application and related procedures.

Standard Number:
61-02-02

INSTRUMENTATION TECHNOLOGY, DEGREE

ADMISSIONS
(Provisional Admission Requirements)

Standard Statement

Statewide provisional admission requirements are implemented for the Instrumentation Technology associate degree program.

Explanatory Comment

Provisional admission is granted to qualified students who do not meet the regular admission requirements of the program.

Provisionally admitted students are allowed to take developmental studies courses and/or pre-tech courses and certain occupational courses as designated in the course sequence standard.

The institution develops and implements clearly stated policies and procedures for entry into degree programs on a provisional basis.

Evaluative Criteria

Provisional admission to the Instrumentation Technology associate degree program is afforded those students who do not meet program admission requirements but who meet provisional admission requirements.

The requirements for provisional admission to the Instrumentation Technology associate degree program are:
a) attainment of 16 or more years of age;
b) documentation of high school graduation or satisfaction of High School Equivalency Certificate requirements or recommendation by program faculty and designated admissions personnel on the basis of interview and assessment of student potential; and
c) completion of application and related procedures.

All Instrumentation Technology associate degree program students initially admitted on a provisional basis meet regular admission requirements prior to graduation.

INSTRUMENTATION TECHNOLOGY, DEGREE

Provisionally admitted students whose English, math, and/or reading achievement levels do not meet regular program admission requirements are required to enroll in developmental studies courses approved by the Georgia Board of Technical and Adult Education.

Standard Number:
61-02-03

INSTRUMENTATION TECHNOLOGY, DEGREE

ADMISSIONS
(Recruitment)

Standard Statement

The Instrumentation Technology associate degree program recruitment materials and practices are in the best interests of the students, institution, community, and employment market.

Explanatory Comment

The recruitment effort makes potential students aware of the services provided by the Instrumentation Technology associate degree program and the institution.

The recruitment effort seeks to serve the economic development of the community by affording opportunities to prospective students.

The institution develops and implements a systematic, overall recruitment effort designed to assist students in meeting their occupational needs.

Evaluative Criteria

The recruitment effort assists in maintaining and/or increasing the Instrumentation Technology associate degree program and institution enrollments.

The recruitment effort of the Instrumentation Technology associate degree program includes participation in or assistance with:
a) development and dissemination of informational materials;
b) recruitment activities with other programs within the institution;
c) communication with potential students through contact with employers, secondary schools, organizations, the program advisory committee, and others;
d) promotion of Instrumentation Technology associate degree program awareness among individuals and groups; and
e) consideration of the industrial and business needs of the community and employment market.

All recruitment materials and practices are ethical, equitable, and accurate in the depiction of the institution, the Instrumentation Technology associate degree program, and the potential benefits of program completion.

Standard Number:
61-02-03

INSTRUMENTATION TECHNOLOGY, DEGREE

A written description of the admission requirements and procedures, tuition fees, and other costs of the Instrumentation Technology associate degree program is made available to potential students.

Standard Number:
61-02-04

INSTRUMENTATION TECHNOLOGY, DEGREE

ADMISSIONS
(Evaluation and Planning)

Standard Statement

An evaluation of the admission requirements of the Instrumentation Technology associate degree program is conducted.

Explanatory Comment

The admission requirements of the Instrumentation Technology associate degree program are compatible with the admissions policies and procedures of the institution.

Evaluative Criteria

Instrumentation Technology associate degree program admission requirements are evaluated annually to assure compliance with Georgia Board of Technical and Adult Education policies and standards and designated accrediting agency requirements.

The administration, with input from the program faculty and advisory committee, conducts an annual evaluation of Instrumentation Technology associate degree program admission requirements to assess their adequacy in meeting the needs of the students, community, and employment market.

The evaluation results are used to modify the admissions procedures of the institution and to suggest Instrumentation Technology associate degree program admission changes to the Georgia Board of Technical and Adult Education, as needed.

Standard Number:
60-03-01

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Curriculum Design)

Standard Statement

The curriculum of the Instrumentation Technology program includes four categories of instruction: general core courses, fundamental technical courses, specific technical courses, and elective courses.

Explanatory Comment

General core courses and fundamental technical courses provide the academic technical background that supports the specific technical and elective courses.

Evaluative Criteria

The Instrumentation Technology program requires student completion of general core courses such as math, language skills, and other courses required by the Georgia Board of Technical and Adult Education.

The Instrumentation Technology program requires student completion of fundamental technical courses in introductory concepts, principles, and technologies that provide the foundations for the given occupation and related fields.

The Instrumentation Technology program requires student completion of specific technical courses that build on the foundations provided in the fundamental technical courses.

Instrumentation Technology program students are offered the opportunity to take state-approved elective courses in order to develop their individual interests.

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Program Numbering System)

Standard Statement

A Classification of Instructional Programs (CIP) code is applied to the Instrumentation Technology program.

Explanatory Comment

Assignment of a statewide CIP code to every diploma/degree program is the basis for consistent program identification.

Specialization options within the Instrumentation Technology program are assigned a (SPC) CIP code specialization number for evaluation, planning, and reporting purposes.

Evaluative Criteria

The Instrumentation Technology program is assigned a (PGM) CIP code of (PGM) 47.0401 and is consistent with all other programs throughout the state which have the same (PGM) CIP code.

Standard Number:
60-03-03

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Program Consistency)

Standard Statement

The Instrumentation Technology program utilizes essential course components consistent with statewide program requirements.

Explanatory Comment

Programs assigned an identical (PGM) CIP code are consistent statewide.

Evaluative Criteria

The Instrumentation Technology program is assigned a (PGM) CIP code of (PGM) 47.0401 and utilizes essential components designated for that program number statewide. Program components include, but are not limited to:

a) Program Title

Instrumentation Technology

b) Program Description

The Instrumentation Technology program is a sequence of courses that prepares students for instrumentation professions. Learning opportunities develop academic, technical, and professional knowledge and skills required for job acquisition, retention, and advancement. The program emphasizes a combination of instrumentation technology theory and practical application necessary for successful employment. Program graduates receive an Instrumentation Technology diploma which qualifies them as instrumentation technicians.

INSTRUMENTATION TECHNOLOGY

c) Essential Courses			Credits
1) Essential General Core Courses			18
ENG	101	English	5
MAT	103	Algebraic Concepts	5
MAT	104	Geometry and Trigonometry	5
PSY	100	Interpersonal Relations and Professional Development	3
2) Essential Fundamental Technical Courses			31
CMP	101	Introduction to Microcomputers	3
ELC	106	Direct Current Circuits I	4
ELC	108	Direct Current Circuits II	7
ELC	109	Alternating Current I	7
IMT	103	Blueprints and Schematics	4
IST	101	Introduction to Instrumentation Technology	3
IST	102	Mechanics for Instrumentation	3
3) Essential Specific Technical Courses			69
ELC	110	Alternating Current II	7
ELC	114	Solid State Devices I	7
ELC	118	Digital Electronics I	7
IST	103	Instrument Measuring Principles I	7
IST	104	Instrument Measuring Principles II	7
IST	105	Instrumentation Electronics	3
IST	106	Electronic Instrumentation Maintenance	3
IST	107	Control Valves and Actuators	3
IST	108	Introduction to Programmable Logic Controllers	3
IST	109	Control System Analysis	7
IST	110	Instrumentation Microprocessors	7
IST	111	Distributed Control Systems	2
XXX	xxx	Electives	6

INSTRUMENTATION TECHNOLOGY

d) Program Final Exit Point

Instrumentation technician

e) Credits Required for Graduation

118 minimum quarter hour credits required for graduation

Standard Number:
60-03-04

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Exit Points)

Standard Statement

The Instrumentation Technology program faculty documents student attainment of identified exit points.

Explanatory Comment

Exit points are the points within the program at which occupational competencies are achieved to qualify students for an entry level position in their field.

Evaluative Criteria

The faculty of the Instrumentation Technology program monitors, evaluates, and records student progress towards achieving exit point competency levels.

The final Instrumentation Technology program exit point, documented by a diploma, is an instrumentation technician.

Potential exit points within the Instrumentation Technology program include, but are not limited to, an instrumentation technician trainee.

The institution documents completion of exit points with a transcript.

Graduation from the Instrumentation Technology program is dependent upon meeting the requirements of the Georgia Board of Technical and Adult Education.

Standard Number:
60-03-05

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Credentials)

Standard Statement

The achievement of Instrumentation Technology program graduates and leavers is documented by the institution.

Explanatory Comment

A program graduate is a student who successfully fulfills all program requirements. A program leaver is a student who exits from the program prior to completion of all program requirements.

Course description documents are based on the course title, the essential course description, the essential competency areas taught, and the number of credits awarded as detailed in the program-specific standards and the listing of state-approved electives.

Evaluative Criteria

The institution grants Instrumentation Technology program graduates a diploma certifying satisfaction of program requirements.

Upon request, each Instrumentation Technology program graduate is provided a transcript and course description document detailing courses taken, grades, credits earned, and credential awarded.

Upon request, each Instrumentation Technology program leaver who has completed one or more courses is provided a transcript and course description document detailing courses taken, grades, and credits earned.

Upon request, each Instrumentation Technology program leaver who has not completed an entire course is provided a transcript and course description document detailing the course entered and withdrawal.

Standard Number:
60-03-06

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Course Code)

Standard Statement

A statewide course identification code is applied to each Instrumentation Technology course.

Explanatory Comment

An alphanumeric identification code is assigned to each course.

All Georgia Board of Technical and Adult Education approved courses are included in the course identification coding system.

Evaluative Criteria

Each course is assigned an alphanumeric descriptor that serves as the statewide course identification code.

The following list contains the Georgia Board of Technical and Adult Education designated course titles and course identification codes of the Instrumentation Technology program.

CMP	101	Introduction to Microcomputers
ELC	106	Direct Current Circuits I
ELC	108	Direct Current Circuits II
ELC	109	Alternating Current I
ELC	110	Alternating Current II
ELC	114	Solid State Devices I
ELC	118	Digital Electronics I
ENG	101	English
IMT	103	Blueprints and Schematics
IST	101	Introduction to Instrumentation Technology
IST	102	Mechanics for Instrumentation
IST	103	Instrument Measuring Principles I
IST	104	Instrument Measuring Principles II
IST	105	Instrumentation Electronics

INSTRUMENTATION TECHNOLOGY

IST	106	Electronic Instrumentation Maintenance
IST	107	Control Valves and Actuators
IST	108	Introduction to Programmable Logic Controllers
IST	109	Control System Analysis
IST	110	Instrumentation Microprocessors
IST	111	Distributed Control Systems
MAT	103	Algebraic Concepts
MAT	104	Geometry and Trigonometry
PSY	100	Interpersonal Relations and Professional Development

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Course Consistency)

Standard Statement

Courses assigned a given course identification code are consistent.

Explanatory Comment

Courses assigned the same course identification code are consistent throughout the state.

One quarter equals a minimum of 50 instructional days. One contact hour equals a minimum of 50 minutes of instruction.

One (l) quarter hour credit is defined as follows:

a) class - One contact hour of class per week for the duration of a quarter equals one quarter hour credit; class is defined as instruction which emphasizes group or individualized classroom learning.

b) demonstration laboratory (D.Lab) - Two contact hours of demonstration laboratory per week for the duration of a quarter equals one quarter hour credit; demonstration laboratory is defined as instruction which emphasizes teacher assisted learning activities.

c) practical performance laboratory (P.Lab) - Three contact hours of practical performance laboratory per week for the duration of a quarter equals one quarter hour credit; practical performance laboratory is defined as instruction which emphasizes structured activities requiring the application and practice of occupational competencies.

d) occupation-based instruction (O.B.I.) - Three contact hours of occupation-based instruction per week for the duration of a quarter equals one quarter hour credit; occupation-based instruction is defined as instruction which emphasizes supervised work-experience activities requiring the application of occupational competencies.

Standard Number:
60-03-07

INSTRUMENTATION TECHNOLOGY

Evaluative Criteria

Each course assigned a given course identification code utilizes certain components identical to those designated for that course identification code statewide.

Components designated for each course identification code include:
a) course title;
b) essential course description;
c) essential competency areas taught; and
d) number of quarter hour credits awarded for course completion.

INSTRUMENTATION TECHNOLOGY

Courses in the Instrumentation Technology program include:

CMP 101 - INTRODUCTION TO MICROCOMPUTERS

Introduces fundamental concepts and operations necessary to utilize microcomputers. Emphasis is placed on basic functions and familiarity with computer use. Topics include: computer terminology; computer operating systems; data storage; file management; equipment care and operation; and an introduction to word processing, database, and spreadsheet applications.

Competency Areas

- Computer Terminology
- Disk Operating Systems
- Data Storage
- File Management
- Hardware and Software Care and Operation
- Introductory Word Processing, Database, and Spreadsheet Applications

Hours

Class/Week - 1
D.Lab/Week - 4
Credit - 3

Prerequisite: Provisional admission

ELC 106 - DIRECT CURRENT CIRCUITS I

Introduces direct current (DC) concepts and applications. Topics include: fundamental electrical principles and laws; direct current test equipment; series, parallel, and combination circuits; and basic laboratory procedures and safety practices.

Competency Areas

- Electrical Principles and Laws
- DC Test Equipment
- Series, Parallel, and Combination Circuits
- Laboratory Procedures and Safety Practices

Hours

Class/Week - 3
D.Lab/Week - 2
Credit - 4

Prerequisite/Corequisite: MAT 103

INSTRUMENTATION TECHNOLOGY

ELC 108 - DIRECT CURRENT CIRCUITS II

Continues direct current (DC) concepts and applications. Topics include: DC theorems, RL/RC time constants, and reinforcement of laboratory procedures and safety practices.

Competency Areas	Hours
- DC Theorems	Class/Week - 4
- RL/RC Time Constants	D.Lab/Week - 6
- Laboratory Procedures and Safety Practices	Credit - 7

Prerequisite/Corequisite: ELC 106

ELC 109 - ALTERNATING CURRENT I

Introduces the theory and application of varying sine wave voltages and current. Topics include: AC wave generation factors such as peak, peak to peak, average, and RMS values of AC voltage and current; frequency and phase relationship in resistive, RL, RC, and RCL circuits; and impedance, admittance, and conductance power factors calculated from given and/or measured data.

Competency Areas	Hours
- AC Wave Generation	Class/Week - 4
- Frequency and Phase Relationship	D.Lab/Week - 6
- Impedance, Admittance, and Conductance Power Factors	Credit - 7

Prerequisites/Corequisites: ELC 108, MAT 104

INSTRUMENTATION TECHNOLOGY

ELC 110 - ALTERNATING CURRENT II

Continues development of AC concepts with emphasis on constructing, verifying, and troubleshooting reactive circuits using RCL analyzers and oscilloscopes. Topics include: simple RL, RC, and RCL circuits; AC circuit resonance; filter, impedance bridge, and test equipment use; transformer theory, operation, calculations, and applications; nonsinusoidal wave forms; three-phase circuit calculations; and AC motor and generator theory.

Competency Areas	Hours
- Simple RL, RC, and RCL Circuits	Class/Week - 4
- AC Circuit Resonance	D.Lab/Week - 6
- Filter, Impedance Bridge, and Test Equipment Use	Credit - 7
- Transformer Theory, Operation, Calculations, and Applications	
- Nonsinusoidal Wave Forms	
- Three-Phase Circuit Calculations	
- AC Motor and Generator Theory	

Prerequisite/Corequisite: ELC 109

ELC 114 - SOLID STATE DEVICES I

Introduces the physical characteristics and application of solid state devices. Topics include: semiconductor physics, PN diodes and power supply, bipolar junction transistors and amplifiers, and field effect transistors.

Competency Areas	Hours
- Semiconductor Physics	Class/Week - 4
- PN Diodes and Power Supply	D.Lab/Week - 6
- Bipolar Junction Transistors and Amplifiers	Credit - 7
- Field Effect Transistors	

Prerequisite/Corequisite: ELC 110

INSTRUMENTATION TECHNOLOGY

ELC 118 - DIGITAL ELECTRONICS I

Introduces the basic building blocks of digital circuits. Topics include: Boolean algebra and minimization concepts; digital test equipment; and AND, OR, NOR, NAND gates, and truth tables.

Competency Areas	Hours
- Boolean Algebra and Minimization Concepts	Class/Week - 4
- Digital Test Equipment	D.Lab/Week - 6
- AND, OR, NOR, NAND Gates, and Truth Tables	Credit - 7

Prerequisite/Corequisite: ELC 108

ENG 101 - ENGLISH

Emphasizes the development and improvement of written and oral communication abilities. Topics include: analysis of writing techniques used in selected readings, writing practice, editing and proofreading, research skills, and oral presentation skills. Homework assignments reinforce classroom learning.

Competency Areas	Hours
- Analysis of Writing Techniques Used in Selected Readings	Class/Week - 5 Lab/Week - 0
- Writing Practice	Credit - 5
- Editing and Proofreading	
- Research Skills	
- Oral Presentation Skills	

Prerequisite: Program admission level English and reading competency

INSTRUMENTATION TECHNOLOGY

IMT 103 - BLUEPRINTS AND SCHEMATICS

Provides the skills necessary for reading basic blueprints and schematics. Emphasis is placed on developing the foundation upon which increased skill will be built in electrical, electronics, mechanics, and fluidics courses. Topics include: diagrams, symbols, interpretation of prints, and sketching.

Competency Areas	Hours
- Diagrams	Class/Week - 3
- Symbols	D.Lab/Week - 2
- Interpretation of Prints	Credit - 4
- Sketching	

Prerequisite: Program admission level math competency

IST 101 - INTRODUCTION TO INSTRUMENTATION TECHNOLOGY

Provides an overview of career opportunities in the instrumentation technology field and introduces instrumentation concepts, practices, and procedures. Topics include: instrumentation careers and employment market, safety practices and procedures, basic instrumentation terminology, block diagram process flow, paybacks of quality, and professional standards and organizations.

Competency Areas	Hours
- Instrumentation Careers and Employment Market	Class/Week - 2
- Safety Practices and Procedures	D.Lab/Week - 3
- Basic Instrumentation Terminology	Credit - 3
- Block Diagram Process Flow	
- Paybacks of Quality	
- Professional Standards and Organizations	

Prerequisite: Provisional admission

INSTRUMENTATION TECHNOLOGY

IST 102 - MECHANICS FOR INSTRUMENTATION

Provides the knowledge and skills associated with basic mechanical principles and that part of physics concerned with the properties of matter and mechanics of fluids. Topics include: units of measurement, simple machines, properties of matter, and mechanics of fluids.

Competency Areas

- Units of Measurement
- Simple Machines
- Properties of Matter
- Mechanics of Fluids

Hours

Class/Week - 2
D.Lab/Week - 3
Credit - 3

Prerequisite: MAT 103

IST 103 - INSTRUMENT MEASURING PRINCIPLES I

Introduces the knowledge and skills required to troubleshoot, repair, and calibrate instruments and systems used for measuring process variables. Topics include: safety rules and precautions; review of basic principles; primary and secondary standards; and sensing elements for level, flow, and pressure.

Competency Areas

- Safety Rules and Precautions
- Review of Basic Principles
- Primary and Secondary Standards
- Sensing Elements for Level, Flow, and Pressure

Hours

Class/Week - 5
D.Lab/Week - 5
Credit - 7

Prerequisite/Corequisite: IST 102

INSTRUMENTATION TECHNOLOGY

IST 104 - INSTRUMENT MEASURING PRINCIPLES II

Continues the study of the knowledge and skills required to troubleshoot, repair, and calibrate instruments to manufacturers' specifications. This course focuses on secondary standards for measuring, comparing findings, and calculating process variables for temperature, viscosity, specific gravity, and humidity. Topics include: temperature measurements and instruments, viscosity measurements and instruments, specific gravity measurements and instruments, and humidity measurements and instruments.

Competency Areas	Hours
- Temperature Measurements and Instruments	Class/Week - 5
- Viscosity Measurements and Instruments	D.Lab/Week - 5
- Specific Gravity Measurements and Instruments	Credit - 7
- Humidity Measurements and Instruments	

Prerequisite/Corequisite: IST 103

IST 105 - INSTRUMENTATION ELECTRONICS

Provides students with the knowledge and skills needed to analyze and test electronic instrumentation circuits. Topics include: semiconductor switches, integrated circuits, and operational amplifiers.

Competency Areas	Hours
- Semiconductor Switches	Class/Week - 2
- Integrated Circuits	D.Lab/Week - 3
- Operational Amplifiers	Credit - 3

Prerequisite/Corequisite: ELC 114

INSTRUMENTATION TECHNOLOGY

IST 106 - ELECTRONIC INSTRUMENTATION MAINTENANCE

Provides the student with the knowledge and skills needed to troubleshoot, repair, and calibrate electronic instruments to manufacturers' specifications. Topics include: electrical safety, auxiliary electrical devices, and electronic process control instruments.

Competency Areas	Hours
- Electrical Safety	Class/Week - 2
- Auxiliary Electrical Devices	D.Lab/Week - 3
- Electronic Process Control Instruments	Credit - 3

Prerequisites/Corequisites: ELC 114, IST 105

IST 107 - CONTROL VALVES AND ACTUATORS

Develops the knowledge and skills needed to install and maintain control valves and actuators. Topics include: control valve types, control valve and actuator characteristics, and valve and actuator operation.

Competency Areas	Hours
- Control Valve Types	Class/Week - 2
- Control Valve and Actuator Characteristics	D.Lab/Week - 3
- Valve and Actuator Operation	Credit - 3

Prerequisite/Corequisite: IST 102

INSTRUMENTATION TECHNOLOGY

IST 108 - INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLERS

Introduces operational theory, systems terminology, field wiring/installation, and start-up procedures for programmable logic controllers. Emphasis is placed on PLC programming, installations, start-up procedures, and relay programming logic. Topics include: PLC function and terminology, report generation, field wiring/installation and start-up, and troubleshooting.

Competency Areas

- PLC Function and Terminology
- Report Generation
- Field Wiring/Installation and Start-Up
- Troubleshooting

Hours

Class/Week - 2
D.Lab/Week - 3
Credit - 3

Prerequisite/Corequisite: ELC 109

IST 109 - CONTROL SYSTEM ANALYSIS

Provides students with the knowledge and skills to interpret P & ID drawings on standard processes and explains the function of each instrument in the system. Focuses on troubleshooting and repairing standard control systems. Topics include: process characteristics, block diagrams, open and closed loop feedback systems, and documentation.

Competency Areas

- Process Characteristics
- Block Diagrams
- Open and Closed Loop Feedback Systems
- Documentation

Hours

Class/Week - 5
D.Lab/Week - 5
Credit - 7

Prerequisite/Corequisite: IST 106

INSTRUMENTATION TECHNOLOGY

IST 110 - INSTRUMENTATION MICROPROCESSORS

Introduces the students to microprocessor theory and control systems application. Topics include: architecture, theory of operation, programming and interfacing, installation procedures, and diagnostic techniques.

Competency Areas	Hours
- Architecture	Class/Week - 5
- Theory of Operation	D.Lab/Week - 5
- Programming and Interfacing	Credit - 7
- Installation Procedures	
- Diagnostic Techniques	

Prerequisite/Corequisite: IST 109

IST 111 - DISTRIBUTED CONTROL SYSTEMS

Emphasizes a systems approach to instrumentation control of industrial processes. Topics include: block diagrams, sensors, signal conditioning, signal controlling, and operator interface.

Competency Areas	Hours
- Block Diagrams	Class/Week - 2
- Sensors	D.Lab/Week - 1
- Signal Conditioning	Credit - 2
- Signal Controlling	
- Operator Interface	

Prerequisite/Corequisite: IST 110

INSTRUMENTATION TECHNOLOGY

MAT 103 - ALGEBRAIC CONCEPTS

Introduces concepts and operations which can be applied to the study of algebra. Topics include: a review of arithmetic, signed numbers, order of operations, unknowns and variables, algebraic expressions, equations and formulas, and graphs. Class includes lecture, applications, and homework to reinforce learning.

Competency Areas	Hours
- Basic Mathematical Concepts	Class/Week - 5
- Basic Algebraic Concepts	Lab/Week - 0
	Credit - 5

Prerequisite: Program admission level math competency

MAT 104 - GEOMETRY AND TRIGONOMETRY

Emphasizes the development of algebraic concepts and introduces geometric and trigonometric concepts. Topics include: exponents, algebraic fractions, higher order equations, functions, linear geometry, two dimensional geometry, three dimensional geometry, and trigonometric functions. Class includes lectures, applications, and homework to reinforce learning.

Competency Areas	Hours
- Algebraic Operations	Class/Week - 5
- Geometric Formulas	Lab/Week - 0
- Trigonometric Functions	Credit - 5

Prerequisite: MAT 103

INSTRUMENTATION TECHNOLOGY

PSY 100 - INTERPERSONAL RELATIONS AND PROFESSIONAL DEVELOPMENT

Provides a study of human relations and professional development in today's rapidly changing world that prepares students for living and working in a complex society. Topics include: personal skills required for an understanding of self and others; projecting a professional image; job acquisition skills such as conducting a job search, interviewing techniques, job application, and resume preparation; desirable job performance skills; and desirable attitudes necessary for job retention and advancement.

Competency Areas	Hours
- Human Relations Skills	Class/Week - 3
- Job Acquisition Skills	Lab/Week - 0
- Job Retention Skills	Credit - 3
- Job Advancement Skills	
- Professional Image Skills	

Prerequisite: Provisional admission

Standard Number:
60-03-08

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Course Sequence)

Standard Statement

The Instrumentation Technology program requires students to progress through the four instructional course categories in a developmentally valid sequence.

Explanatory Comment

The four instructional course categories are: general core courses, fundamental technical courses, specific technical courses, and elective courses.

A developmentally valid instructional sequence is one in which the student acquires prerequisite knowledge and skills before progressing to more advanced studies.

Evaluative Criteria

The Instrumentation Technology program requires students to complete prerequisite courses prior to enrolling in subsequent courses.

Provisions are made for Instrumentation Technology program students to exempt courses in which they are competent.

The Instrumentation Technology program complies with the required provisional admission, program admission, and/or program admission level competency prerequisites listed below.

The Instrumentation Technology program reflects the suggested course prerequisites and/or corequisites listed below.

(In the list below prerequisites are indicated by [P]
and prerequisites/corequisites by [P/C].)

Courses			Sequence
CMP	101	Introduction to Microcomputers	[P] Provisional admission
ELC	106	Direct Current Circuits I	[P/C] MAT 103

INSTRUMENTATION TECHNOLOGY

ELC	108	Direct Current Circuits II	[P/C] ELC 106
ELC	109	Alternating Current I	[P/C] ELC 108, MAT 104
ELC	110	Alternating Current II	[P/C] ELC 109
ELC	114	Solid State Devices I	[P/C] ELC 110
ELC	118	Digital Electronics I	[P/C] ELC 108
ENG	101	English	[P] Program admission level English and reading competency
IMT	103	Blueprints and Schematics	[P] Program admission level math competency
IST	101	Introduction to Instrumentation Technology	[P] Provisional admission
IST	102	Mechanics for Instrumentation	[P] MAT 103
IST	103	Instrument Measuring Principles I	[P/C] IST 102
IST	104	Instrument Measuring Principles II	[P/C] IST 103
IST	105	Instrumentation Electronics	[P/C] ELC 114
IST	106	Electronic Instrumentation Maintenance	[P/C] ELC 114, IST 105
IST	107	Control Valves and Actuators	[P/C] IST 102
IST	108	Introduction to Programmable Logic Controllers	[P/C] ELC 109
IST	109	Control System Analysis	[P/C] IST 106
IST	110	Instrumentation Microprocessors	[P/C] IST 109
IST	111	Distributed Control Systems	[P/C] IST 110
MAT	103	Algebraic Concepts	[P] Program admission level math competency
MAT	104	Geometry and Trigonometry	[P] MAT 103
PSY	100	Interpersonal Relations and Professional Development	[P] Provisional admission

Standard Number:
60-03-09

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Electives)

Standard Statement

Electives are made available for the Instrumentation Technology program.

Explanatory Comment

Instrumentation Technology program students are provided opportunities to enroll in state-approved elective courses. Elective courses utilize the following components: course title, essential course description, essential competency areas, and number of credits awarded for course completion.

Required courses for a diploma program are available to other diploma programs as elective courses.

Evaluative Criteria

Electives are established utilizing the following process:

a) The administration of the institution, the program faculty, and the program advisory committee cooperate in establishing and utilizing a system to recommend needed and feasible elective courses;
b) The administration of the institution, the program faculty, and the program advisory committee communicate with the statewide program technical committee and appropriate staff of the Georgia Department of Technical and Adult Education concerning the proposed elective(s);
c) The administration of the institution, the program faculty, and the program advisory committee consider revisions and prepare a final elective course proposal;
d) The administration of the institution presents the elective course proposal to the appropriate staff of the Georgia Department of Technical and Adult Education;
e) The staff of the Georgia Department of Technical and Adult Education reviews the proposal using its established criteria for evaluating elective courses.

Electives are made available for the Instrumentation Technology program and elective courses are offered as options within the program graduation requirements.

Standard Number:
60-03-10

INSTRUMENTATION TECHNOLOGY

PROGRAM STRUCTURE
(Course Transferability)

Standard Statement

Instrumentation Technology program courses are transferable on the basis of their course identification code.

Explanatory Comment

Courses assigned identical course identification codes include consistent essential competency areas; therefore, resultant credits are guaranteed transferability between programs and institutions under the jurisdiction of the Georgia Board of Technical and Adult Education.

Courses that do not have an assigned course identification code but include similar essential competency areas are selectively transferable.

Evaluative Criteria

Instrumentation Technology program courses assigned designated course identification codes are transferable between programs and institutions under the jurisdiction of the Georgia Board of Technical and Adult Education.

Courses taken outside the Georgia Technical and Adult Education system are selectively accepted for transfer on the basis of similarity in competency areas as determined by the Instrumentation Technology program faculty and admissions officers.

Only those courses in which a grade of C or better was awarded are transferable.

Standard Number:
61-03-01

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Curriculum Design)

Standard Statement

The curriculum of the Instrumentation Technology associate degree program includes four categories of instruction: general core courses, fundamental technical courses, specific technical courses, and elective courses.

Explanatory Comment

General core courses and fundamental technical courses provide the academic and technical background that supports the specific technical and elective courses.

Evaluative Criteria

The Instrumentation Technology associate degree program requires student completion of general core courses such as math, language skills, and other courses required by the Georgia Board of Technical and Adult Education.

The Instrumentation Technology associate degree program requires student completion of fundamental technical courses in introductory concepts, principles, and technologies that provide the foundations for the given occupation and related fields.

The Instrumentation Technology associate degree program requires student completion of specific technical courses that build on the foundations provided in the fundamental technical courses.

Instrumentation Technology associate degree program students are offered the opportunity to take state-approved elective courses in order to develop their individual interests.

Standard Number:
61-03-02

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Program Numbering System)

Standard Statement

A Classification of Instructional Programs (CIP) code is applied to the Instrumentation Technology associate degree program.

Explanatory Comment

Assignment of a statewide CIP code to every diploma/degree program is the basis for consistent program identification.

Evaluative Criteria

The Instrumentation Technology associate degree program is assigned a (PGM) CIP code of (PGM) 15.0404 and is consistent with all other programs throughout the state which have the same (PGM) CIP code.

Standard Number:
61-03-03

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Program Consistency)

Standard Statement

The Instrumentation Technology associate degree program utilizes essential course components consistent with statewide program requirements.

Explanatory Comment

Programs assigned an identical (PGM) CIP code are consistent statewide.

Evaluative Criteria

The Instrumentation Technology associate degree program is assigned a (PGM) CIP code of (PGM) 15.0404 and utilizes essential components designated for that program number statewide. Program components include, but are not limited to:

a) Program Title

Instrumentation Technology, associate degree

b) Program Description

The Instrumentation Technology associate degree program is a planned sequence of carefully developed college-level courses designed to prepare students to work as technicians in one of the various specialties in the field. Graduates will receive an Instrumentation Technology associate degree. The program of study emphasizes the application of science and technology combined to prepare graduates to function as instrumentation technicians.

INSTRUMENTATION TECHNOLOGY, DEGREE

c)	Essential Courses		Credits
1)	Essential General Core Courses		25
ENG	191	Composition	5
MAT	191	College Algebra	5
MAT	193	College Trigonometry	5
PHY	190	Introductory Physics	5
PSY	191	Introductory Psychology	
OR			
ECO	191	Principles of Economics	5
2)	Essential Fundamental Technical Courses		28
CMP	101	Introduction to Microcomputers	3
ELC	106	Direct Current Circuits I	4
ELC	108	Direct Current Circuits II	7
ELC	109	Alternating Current I	7
IMT	103	Blueprints and Schematics	4
IST	101	Introduction to Instrumentation Technology	3
3)	Essential Specific Technical Courses		63
ELC	110	Alternating Current II	7
ELC	114	Solid State Devices I	7
ELC	118	Digital Electronics I	7
IST	103	Instrument Measuring Principles I	7
IST	104	Instrument Measuring Principles II	7
IST	105	Instrumentation Electronics	3
IST	106	Electronic Instrumentation Maintenance	3
IST	107	Control Valves and Actuators	3
IST	108	Introduction to Programmable Logic Controllers	3
IST	109	Control System Analysis	7
IST	110	Instrumentation Microprocessors	7
IST	111	Distributed Control Systems	2

INSTRUMENTATION TECHNOLOGY, DEGREE

4) Elective Courses			6
XXX	xxx	Elective	3
XXX	xxx	Elective	3

d) Program Final Exit Point

Instrumentation technician, associate degree level

e) Credits Required for Graduation

122 minimum quarter hour credits required for graduation

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Exit Points)

Standard Statement

The Instrumentation Technology associate degree program faculty documents student attainment of identified exit points.

Explanatory Comment

Exit points are the points within the program at which technical competencies are achieved to qualify students for an entry level position in their field.

Evaluative Criteria

The faculty of the Instrumentation Technology associate degree program monitors, evaluates, and records student progress towards achieving exit point competency levels.

The final Instrumentation Technology associate degree program exit point, documented by an associate degree, is that of an instrumentation technician.

The institution documents completion of exit points with a transcript.

Graduation from the Instrumentation Technology associate degree program is dependent upon meeting the requirements of the Georgia Board of Technical and Adult Education.

Standard Number:
61-03-05

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Credentials)

Standard Statement

The achievement of Instrumentation Technology associate degree program graduates and leavers is documented by the institution.

Explanatory Comment

A program graduate is a student who successfully fulfills all program requirements. A program leaver is a student who exits from the program prior to completion of all program requirements.

Course description documents are based on the course title, the essential course description, the essential competency areas taught, and the number of credits awarded as detailed in the program-specific standards and the listing of state-approved electives.

Evaluative Criteria

The institution grants Instrumentation Technology associate degree program graduates an associate degree certifying satisfaction of program requirements.

Upon request, each Instrumentation Technology associate degree program graduate is provided a transcript and course description document detailing courses taken, grades, credits earned, and credential awarded.

Upon request, each Instrumentation Technology associate degree program leaver who has completed one or more courses is provided a transcript and course description document detailing courses taken, grades, and credits earned.

Upon request, each Instrumentation Technology associate degree program leaver who has not completed an entire course is provided a transcript and course description document detailing the course entered and withdrawal.

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Course Code)

Standard Statement

A statewide course identification code is applied to each Instrumentation Technology course.

Explanatory Comment

An alphanumeric identification code is assigned to each course.

All Georgia Board of Technical and Adult Education approved courses are included in the course identification coding system.

Evaluative Criteria

Each Instrumentation Technology course is assigned an alphanumeric descriptor that serves as the statewide course identification code.

The following list contains the Georgia Board of Technical and Adult Education designated course titles and course identification codes of the Instrumentation Technology associate degree program.

CMP	101	Introduction to Microcomputers
ECO	191	Principles of Economics
ELC	106	Direct Current Circuits I
ELC	108	Direct Current Circuits II
ELC	109	Alternating Current I
ELC	110	Alternating Current II
ELC	114	Solid State Devices I
ELC	118	Digital Electronics I
ENG	191	Composition
IMT	103	Blueprints and Schematics
IST	101	Introduction to Instrumentation Technology
IST	103	Instrument Measuring Principles I
IST	104	Instrument Measuring Principles II
IST	105	Instrumentation Electronics

Standard Number:
61-03-06

INSTRUMENTATION TECHNOLOGY, DEGREE

IST	106	Electronic Instrumentation Maintenance
IST	107	Control Valves and Actuators
IST	108	Introduction to Programmable Logic Controllers
IST	109	Control System Analysis
IST	110	Instrumentation Microprocessors
IST	111	Distributed Control Systems
MAT	191	College Algebra
MAT	193	College Trigonometry
PHY	190	Introductory Physics
PSY	191	Introductory Psychology

Standard Number:
61-03-07

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Course Consistency)

Standard Statement

Courses assigned a given course identification code are consistent.

Explanatory Comment

Courses assigned the same course identification code are consistent throughout the state.

One quarter equals a minimum of 50 instructional days. One contact hour equals a minimum of 50 minutes of instruction.

One (l) quarter hour credit is defined as follows:

a) class - One contact hour of class per week for the duration of a quarter equals one quarter hour credit; class is defined as instruction which emphasizes group or individualized classroom learning.

b) demonstration laboratory (D.Lab) - Two contact hours of demonstration laboratory per week for the duration of a quarter equals one quarter hour credit; demonstration laboratory is defined as instruction which emphasizes teacher assisted learning activities.

c) practical performance laboratory (P.Lab) - Three contact hours of practical performance laboratory per week for the duration of a quarter equals one quarter hour credit; practical performance laboratory is defined as instruction which emphasizes structured activities requiring the application and practice of occupational competencies.

d) occupation-based instruction (O.B.I.) - Three contact hours of occupation-based instruction per week for the duration of a quarter equals one quarter hour credit; occupation-based instruction is defined as instruction which emphasizes supervised work-experience activities requiring the application of occupational competencies.

Standard Number:
61-03-07

INSTRUMENTATION TECHNOLOGY, DEGREE

Evaluative Criteria

Each course assigned a given course identification code utilizes certain components identical to those designated for that course identification code statewide.

Components designated for each course identification code include:
a) course title;
b) essential course description;
c) essential competency areas taught; and
d) number of quarter hour credits awarded for course completion.

INSTRUMENTATION TECHNOLOGY, DEGREE

Courses in the Instrumentation Technology program include:

CMP 101 - INTRODUCTION TO MICROCOMPUTERS

Introduces fundamental concepts and operations necessary to utilize microcomputers. Emphasis is placed on basic functions and familiarity with computer use. Topics include: computer terminology; computer operating systems; data storage; file management; equipment care and operation; and an introduction to word processing, database, and spreadsheet applications.

Competency Areas

- Computer Terminology
- Disk Operating Systems
- Data Storage
- File Management
- Hardware and Software Care and Operation
- Introductory Word Processing, Database, and Spreadsheet Applications

Hours

Class/Week - 1
D.Lab/Week - 4
Credit - 3

Prerequisite: Provisional admission

INSTRUMENTATION TECHNOLOGY, DEGREE

ECO 191 - PRINCIPLES OF ECONOMICS

Investigates economic principles and applications of economic principles to current trends. Emphasis is placed on principles of the American economic system of free enterprise. Topics include: basic economic principles; economic forces and indicators; capital and labor; business enterprise; factors of industrial production cost; price, competition, and monopoly; personal income management; insurance, personal investments, and social security; money and banking; government expenditures, federal and local; fluctuations in production, employment, and income; and the United States economy in perspective.

Competency Areas	Hours
- Basic Economic Principles	Class/Week - 5
- Economic Forces and Indicators	Lab/Week - 0
- Capital and Labor	Credit - 5
- Business Enterprise	
- Factors of Industrial Production Cost	
- Price, Competition, and Monopoly	
- Personal Income Management	
- Insurance, Personal Investments, and Social Security	
- Money and Banking	
- Government Expenditures, Federal and Local	
- Fluctuations in Production, Employment, and Income	
- United States Economy in Perspective	

Prerequisite: Program admission

INSTRUMENTATION TECHNOLOGY, DEGREE

ELC 106 - DIRECT CURRENT CIRCUITS I

Introduces direct current (DC) concepts and applications. Topics include: fundamental electrical principles and laws; direct current test equipment; series, parallel, and combination circuits; and basic laboratory procedures and safety practices.

Competency Areas	Hours
- Electrical Principles and Laws	Class/Week - 3
- DC Test Equipment	D.Lab/Week - 2
- Series, Parallel, and Combination Circuits	Credit - 4
- Laboratory Procedures and Safety Practices	

Prerequisite/Corequisite: MAT 191

ELC 108 - DIRECT CURRENT CIRCUITS II

Continues direct current (DC) concepts and applications. Topics include: DC theorems, RL/RC time constants, and reinforcement of laboratory procedures and safety practices.

Competency Areas	Hours
- DC Theorems	Class/Week - 4
- RL/RC Time Constants	D.Lab/Week - 6
- Laboratory Procedures and Safety Practices	Credit - 7

Prerequisite/Corequisite: ELC 106

INSTRUMENTATION TECHNOLOGY, DEGREE

ELC 109 - ALTERNATING CURRENT I

Introduces the theory and application of varying sine wave voltages and current. Topics include: AC wave generation factors such as peak, peak to peak, average, and RMS values of AC voltage and current; frequency and phase relationship in resistive, RL, RC, and RCL circuits; and impedance, admittance, and conductance power factors calculated from given and/or measured data.

Competency Areas

- AC Wave Generation
- Frequency and Phase Relationship
- Impedance, Admittance, and Conductance Power Factors

Hours

Class/Week - 4
D.Lab/Week - 6
Credit - 7

Prerequisites/Corequisites: ELC 108, MAT 193

ELC 110 - ALTERNATING CURRENT II

Continues development of AC concepts with emphasis on constructing, verifying, and troubleshooting reactive circuits using RCL analyzers and oscilloscopes. Topics include: simple RL, RC, and RCL circuits; AC circuit resonance; filter, impedance bridge, and test equipment use; transformer theory, operation, calculations, and applications; nonsinusoidal wave forms; three-phase circuit calculations; and AC motor and generator theory.

Competency Areas

- Simple RL, RC, and RCL Circuits
- AC Circuit Resonance
- Filter, Impedance Bridge, and Test Equipment Use
- Transformer Theory, Operation, Calculations, and Applications
- Nonsinusoidal Wave Forms
- Three-Phase Circuit Calculations
- AC Motor and Generator Theory

Hours

Class/Week - 4
D.Lab/Week - 6
Credit - 7

Prerequisite/Corequisite: ELC 109

INSTRUMENTATION TECHNOLOGY, DEGREE

ELC 114 - SOLID STATE DEVICES I

Introduces the physical characteristics and application of solid state devices. Topics include: semiconductor physics, PN diodes and power supply, bipolar junction transistors and amplifiers, and field effect transistors.

Competency Areas	Hours
- Semiconductor Physics	Class/Week - 4
- PN Diodes and Power Supply	D.Lab/Week - 6
- Bipolar Junction Transistors and Amplifiers	Credit - 7
- Field Effect Transistors	

Prerequisite/Corequisite: ELC 110

ELC 118 - DIGITAL ELECTRONICS I

Introduces the basic building blocks of digital circuits. Topics include: Boolean algebra and minimization concepts; digital test equipment; and AND, OR, NOR, NAND gates, and truth tables.

Competency Areas	Hours
- Boolean Algebra and Minimization Concepts	Class/Week - 4
- Digital Test Equipment	D.Lab/Week - 6
- AND, OR, NOR, NAND Gates, and Truth Tables	Credit - 7

Prerequisite/Corequisite: ELC 108

INSTRUMENTATION TECHNOLOGY, DEGREE

ENG 191 - COMPOSITION

Emphasizes the development and improvement of written and oral communications abilities. Topics include: idea development; vocabulary; spelling; outlining; sentence elements; revision; unity and coherence in basic paragraph development; research; exploration of communication modes including description, exposition, argumentation, and persuasion; and functional writing as applied to reports, abstracts, and technical papers.

Competency Areas	Hours
- Fundamentals of Grammar and Composition	Class/Week - 5
- Fundamentals of Oral Communications	Lab/Week - 0
- Modes of Written and Oral Communications	Credit - 5
- Research	

Prerequisite: Program admission level verbal achievement

IMT 103 - BLUEPRINTS AND SCHEMATICS

Provides the skills necessary for reading basic blueprints and schematics. Emphasis is placed on developing the foundation upon which increased skill will be built in electrical, electronics, mechanics, and fluidics courses. Topics include: diagrams, symbols, interpretation of prints, and sketching.

Competency Areas	Hours
- Diagrams	Class/Week - 3
- Symbols	D.Lab/Week - 2
- Interpretation of Prints	Credit - 4
- Sketching	

Prerequisite: Program admission level math competency

INSTRUMENTATION TECHNOLOGY, DEGREE

IST 101 - INTRODUCTION TO INSTRUMENTATION TECHNOLOGY

Provides an overview of career opportunities in the instrumentation technology field and introduces instrumentation concepts, practices, and procedures. Topics include: instrumentation careers and employment market, safety practices and procedures, basic instrumentation terminology, block diagram process flow, paybacks of quality, and professional standards and organizations.

Competency Areas	Hours
- Instrumentation Careers and Employment Market	Class/Week - 2
- Safety Practices and Procedures	D.Lab/Week - 3
- Basic Instrumentation Terminology	Credit - 3
- Block Diagram Process Flow	
- Paybacks of Quality	
- Professional Standards and Organizations	

Prerequisite: Provisional admission

IST 103 - INSTRUMENT MEASURING PRINCIPLES I

Introduces the knowledge and skills required to troubleshoot, repair, and calibrate instruments and systems used for measuring process variables. Topics include: safety rules and precautions; review of basic principles; primary and secondary standards; and sensing elements for level, flow, and pressure.

Competency Areas	Hours
- Safety Rules and Precautions	Class/Week - 5
- Review of Basic Principles	D.Lab/Week - 5
- Primary and Secondary Standards	Credit - 7
- Sensing Elements for Level, Flow, and Pressure	

Prerequisite/Corequisite: PHY 190

INSTRUMENTATION TECHNOLOGY, DEGREE

IST 104 - INSTRUMENT MEASURING PRINCIPLES II

Continues the study of the knowledge and skills required to troubleshoot, repair, and calibrate instruments to manufacturers' specifications. This course focuses on secondary standards for measuring, comparing findings, and calculating process variables for temperature, viscosity, specific gravity, and humidity. Topics include: temperature measurements and instruments, viscosity measurements and instruments, specific gravity measurements and instruments, and humidity measurements and instruments.

Competency Areas	Hours
- Temperature Measurements and Instruments	Class/Week - 5
- Viscosity Measurements and Instruments	D.Lab/Week - 5
- Specific Gravity Measurements and Instruments	Credit - 7
- Humidity Measurements and Instruments	

Prerequisite/Corequisite: IST 103

IST 105 - INSTRUMENTATION ELECTRONICS

Provides students with the knowledge and skills needed to analyze and test electronic instrumentation circuits. Topics include: semiconductor switches, integrated circuits, and operational amplifiers.

Competency Areas	Hours
- Semiconductor Switches	Class/Week - 2
- Integrated Circuits	D.Lab/Week - 3
- Operational Amplifiers	Credit - 3

Prerequisite/Corequisite: ELC 114

INSTRUMENTATION TECHNOLOGY, DEGREE

IST 106 - ELECTRONIC INSTRUMENTATION MAINTENANCE

Provides the student with the knowledge and skills needed to troubleshoot, repair, and calibrate electronic instruments to manufacturers' specifications. Topics include: electrical safety, auxiliary electrical devices, and electronic process control instruments.

Competency Areas	Hours
- Electrical Safety	Class/Week - 2
- Auxiliary Electrical Devices	D.Lab/Week - 3
- Electronic Process Control Instruments	Credit - 3

Prerequisites/Corequisites: ELC 114, IST 105

IST 107 - CONTROL VALVES AND ACTUATORS

Develops the knowledge and skills needed to install and maintain control valves and actuators. Topics include: control valve types, control valve and actuator characteristics, and valve and actuator operation.

Competency Areas	Hours
- Control Valve Types	Class/Week - 2
- Control Valve and Actuator Characteristics	D.Lab/Week - 3
- Valve and Actuator Operation	Credit - 3

Prerequisite/Corequisite: PHY 190

INSTRUMENTATION TECHNOLOGY, DEGREE

IST 108 - INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLERS

Introduces operational theory, systems terminology, field wiring/installation, and start-up procedures for programmable logic controllers. Emphasis is placed on PLC programming, installations, start-up procedures, and relay programming logic. Topics include: PLC function and terminology, report generation, field wiring/installation and start-up, and troubleshooting.

Competency Areas	Hours
- PLC Function and Terminology	Class/Week - 2
- Report Generation	D.Lab/Week - 3
- Field Wiring/Installation and Start-Up	Credit - 3
- Troubleshooting	

Prerequisite/Corequisite: ELC 109

IST 109 - CONTROL SYSTEM ANALYSIS

Provides students with the knowledge and skills to interpret P & ID drawings on standard processes and explains the function of each instrument in the system. Focuses on troubleshooting and repairing standard control systems. Topics include: process characteristics, block diagrams, open and closed loop feedback systems, and documentation.

Competency Areas	Hours
- Process Characteristics	Class/Week - 5
- Block Diagrams	D.Lab/Week - 5
- Open and Closed Loop Feedback Systems	Credit - 7
- Documentation	

Prerequisite/Corequisite: IST 106

INSTRUMENTATION TECHNOLOGY, DEGREE

IST 110 - INSTRUMENTATION MICROPROCESSORS

Introduces the students to microprocessor theory and control systems application. Topics include: architecture, theory of operation, programming and interfacing, installation procedures, and diagnostic techniques.

Competency Areas	Hours
- Architecture	Class/Week - 5
- Theory of Operation	D.Lab/Week - 5
- Programming and Interfacing	Credit - 7
- Installation Procedures	
- Diagnostic Techniques	

Prerequisite/Corequisite: IST 109

IST 111 - DISTRIBUTED CONTROL SYSTEMS

Emphasizes a systems approach to instrumentation control of industrial processes. Topics include: block diagrams, sensors, signal conditioning, signal controlling, and operator interface.

Competency Areas	Hours
- Block Diagrams	Class/Week - 2
- Sensors	D.Lab/Week - 1
- Signal Conditioning	Credit - 2
- Signal Controlling	
- Operator Interface	

Prerequisite/Corequisite: IST 110

INSTRUMENTATION TECHNOLOGY, DEGREE

MAT 191 - COLLEGE ALGEBRA

Emphasizes problem solving techniques. Topics include: fundamental algebra concepts and operations, linear and quadratic equations and functions, simultaneous equations, inequalities, exponents and powers, graphing techniques, and word problems.

Competency Areas	Hours
- Fundamental Concepts and Operations	Class/Week - 5
- Linear and Quadratic Equations and Functions	Lab/Week - 0
- Simultaneous Equations	Credit - 5
- Inequalities	
- Exponents and Powers	
- Graphing Techniques	
- Word Problems	

Prerequisite: Program admission level math achievement

MAT 193 - COLLEGE TRIGONOMETRY

Emphasizes problem solving techniques. Topics include: trigonometric functions, properties of trigonometric functions, vectors and triangles, exponential functions, complex numbers, identities, inverse functions, and logarithmic functions. Graphs of functions and their inverse are included.

Competency Areas	Hours
- Trigonometric Functions	Class/Week - 5
- Properties of Trigonometric Functions	Lab/Week - 0
- Exponential Functions	Credit - 5
- Vectors and Triangles	
- Inverse of Trigonometric Functions/Graphing	
- Logarithmic Functions	

Prerequisite: MAT 191

INSTRUMENTATION TECHNOLOGY, DEGREE

PHY 190 - INTRODUCTORY PHYSICS

Introduces the student to the basic laws of physics. Topics include: Newtonian mechanics, fluids, heat, light and optics, sound, and electricity and magnetism.

Competency Areas

- Newtonian Mechanics
- Fluids
- Heat
- Light and Optics
- Sound
- Electricity and Magnetism

Hours

Class/Week - 4
D.Lab/Week - 3
Credit - 5

Prerequisite: MAT 191

PSY 191 - INTRODUCTORY PSYCHOLOGY

Emphasizes the basics of human psychology and individual and group behavior. Topics include: social environments; career development; communications and group processes; personality; emotions and motives; conflicts, stress, and anxiety; perception and learning; and case problems and typical relationships.

Competency Areas

- Social Environments
- Career Development
- Communications and Group Processes
- Personality
- Emotions and Motives
- Conflicts, Stress, and Anxiety
- Perception and Learning

Hours

Class/Week - 5
Lab/Week - 0
Credit - 5

Prerequisite: Program admission

Standard Number:
61-03-08

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Course Sequence)

Standard Statement

The Instrumentation Technology associate degree program requires students to progress through the four instructional course categories in a developmentally valid sequence.

Explanatory Comment

The four instructional course categories are: general core courses, fundamental technical courses, specific technical courses, and elective courses.

A developmentally valid instructional sequence is one in which the student acquires prerequisite knowledge and skills before progressing to more advanced studies.

Evaluative Criteria

The Instrumentation Technology associate degree program requires students to complete prerequisite courses prior to enrolling in subsequent courses.

Provisions are made for Instrumentation Technology associate degree program students to exempt courses in which they are competent.

The Instrumentation Technology associate degree program complies with the required provisional admission, program admission, and/or program admission level competency prerequisites listed below.

The Instrumentation Technology associate degree program reflects the suggested course prerequisites and/or corequisites listed below.

(In the list below prerequisites are indicated by [P], and prerequisites/corequisites are indicated by [P/C].)

Courses			Sequence
CMP	101	Introduction to Microcomputers	[P] Provisional admission
ECO	191	Principles of Economics	[P] Program admission

Standard Number:
61-03-08

INSTRUMENTATION TECHNOLOGY, DEGREE

ELC	106	Direct Current Circuits I	[P/C] MAT 191
ELC	108	Direct Current Circuits II	[P/C] ELC 106
ELC	109	Alternating Current I	[P/C] ELC 108, MAT 193
ELC	110	Alternating Current II	[P/C] ELC 109
ELC	114	Solid State Devices I	[P/C] ELC 110
ELC	118	Digital Electronics I	[P/C] ELC 108
ENG	191	Composition	[P] Program admission level verbal achievement
IMT	103	Blueprints and Schematics	[P] Program admission level math competency
IST	101	Introduction to Instrumentation Technology	[P] Provisional admission
IST	103	Instrument Measuring Principles I	[P/C] PHY 190
IST	104	Instrument Measuring Principles II	[P/C] IST 103
IST	105	Instrumentation Electronics	[P/C] ELC 114
IST	106	Electronic Instrumentation Maintenance	[P/C] ELC 114, IST 105
IST	107	Control Valves and Actuators	[P/C] PHY 190
IST	108	Introduction to Programmable Logic Controllers	[P/C] ELC 109
IST	109	Control System Analysis	[P/C] IST 106
IST	110	Instrumentation Microprocessors	[P/C] IST 109
IST	111	Distributed Control Systems	[P/C] IST 110
MAT	191	College Algebra	[P] Program admission level math achievement
MAT	193	College Trigonometry	[P] MAT 191
PHY	190	Introductory Physics	[P] MAT 191
PSY	191	Introductory Psychology	[P] Program admission

Standard Number:
61-03-09

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Electives)

Standard Statement

Electives are made available for the Instrumentation Technology associate degree program.

Explanatory Comment

Instrumentation Technology associate degree program students are provided opportunities to enroll in state-approved elective courses. Elective courses utilize the following components: course title, essential course description, essential competency areas, and number of credits awarded for course completion.

Required courses for a degree program are available to other degree programs as elective courses.

Evaluative Criteria

Electives are established utilizing the following process:

a) The administration of the institution, the program faculty, and the program advisory committee cooperate in establishing and utilizing a system to recommend needed and feasible elective courses;

b) The administration of the institution, the program faculty, and the program advisory committee communicate with the statewide program technical committee and appropriate staff of the Georgia Department of Technical and Adult Education concerning the proposed elective(s);

c) The administration of the institution, the program faculty, and the program advisory committee consider revisions and prepare a final elective course proposal;

d) The administration of the institution presents the elective course proposal to the appropriate staff of the Georgia Department of Technical and Adult Education;

e) The staff of the Georgia Department of Technical and Adult Education reviews the proposal using its established criteria for evaluating elective courses.

Electives are made available for the Instrumentation Technology associate degree program and elective courses are offered as options within the program graduation requirements.

Standard Number:
61-03-10

INSTRUMENTATION TECHNOLOGY, DEGREE

PROGRAM STRUCTURE
(Course Transferability)

Standard Statement

Instrumentation Technology associate degree program courses are transferable on the basis of their course identification code.

Explanatory Comment

Courses assigned identical course identification codes include consistent essential competency areas; therefore, resultant credits are guaranteed transferability between programs and institutions under the jurisdiction of the Georgia Board of Technical and Adult Education.

Courses that do not have an assigned course identification code but include similar essential competency areas are selectively transferable.

Evaluative Criteria

Instrumentation Technology associate degree program courses assigned designated course identification codes are transferable between programs and institutions under the jurisdiction of the Georgia Board of Technical and Adult Education.

Courses taken outside the Georgia Technical and Adult Education system are selectively accepted for transfer on the basis of similarity in competency areas as determined by the Instrumentation Technology associate degree program faculty and admissions officers.

Only those courses in which a grade of C or better was awarded are transferable.

Standard Number:
60/61-04-01

INSTRUMENTATION TECHNOLOGY

PROGRAM EVALUATION AND PLANNING
(Program Evaluation)

Standard Statement

A written evaluation procedure is developed and implemented for the Instrumentation Technology program.

Explanatory Comment

Program evaluation procedures vary depending upon the nature of the institution and the program. The administration and program faculty, in association with the program advisory committee, develop and implement program evaluation procedures and data collection techniques that are reasonable and realistic for yearly evaluation purposes.

Instrumentation Technology program faculty and administrative personnel work together to determine student enrollment, attrition, graduation, placement, and performance levels.

Evaluative Criteria

A procedure for continuous Instrumentation Technology program evaluation is developed and implemented by the administration of the institution, program faculty, and program advisory committee. Formal evaluation of the Instrumentation Technology program is conducted and documented annually.

The Instrumentation Technology program evaluation procedure is used to determine the extent to which program goals and objectives are achieved.

The Instrumentation Technology program evaluation results are used to determine the adequacy of the existing program to meet current occupational needs.

The Instrumentation Technology program evaluation procedure is used to ascertain the consistency of the philosophy, purpose, goals, and objectives of the program with those of the institution, the Georgia Board of Technical and Adult Education, and the designated accrediting agency(ies).

The Instrumentation Technology program evaluation procedure includes review of student program evaluations, enrollment, attrition, graduation, placement, and student performance levels.

Standard Number:
60/61-04-01

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology program evaluation procedure includes consultation with the program advisory committee, frequent communication with employers, analysis of placement and follow-up data, and collection of other information to evaluate and document program relevance.

Instrumentation Technology program evaluation results are used to plan program improvements.

Standard Number:
60/61-04-02

INSTRUMENTATION TECHNOLOGY

PROGRAM EVALUATION AND PLANNING
(Program Planning)

Standard Statement

A written planning procedure is developed and implemented for the Instrumentation Technology program.

Explanatory Comment

The Instrumentation Technology program planning procedure allows responsiveness to the changing needs of the community and employment market.

The Instrumentation Technology program is evaluated at the institutional level by the students, instructors, program advisory committee, and administration; from this documented data, short-range and long-range program planning is developed.

Evaluative Criteria

An Instrumentation Technology program planning procedure is developed and implemented by the administration of the institution and program faculty. Formal planning for the Instrumentation Technology program is conducted and documented annually.

The Instrumentation Technology program planning procedure utilizes program evaluation results to facilitate provision of program offerings of sufficient quality and scope to meet community and employment market needs.

The Instrumentation Technology program planning procedure considers recommendations for program and course continuation, addition, deletion, and/or modification based on needs assessment information and input from the administration of the institution, the program faculty, and the advisory committee.

The Instrumentation Technology program planning procedure considers information from appropriate national, state, and local governmental and non-governmental agencies.

The Instrumentation Technology program planning procedure considers information such as demographic studies, occupational surveys, current curricula, cost estimates, instructor availability, equipment needs, and projected enrollment figures that include special populations.

Standard Number:
60/61-04-02

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology program planning procedure satisfies the program planning requirements of the designated accrediting agency(ies).

Standard Number:
60/61-04-03

INSTRUMENTATION TECHNOLOGY

PROGRAM EVALUATION AND PLANNING
(Enrollment, Graduation, and Placement Levels)

Standard Statement

An evaluation of the enrollment, graduation, and placement levels of the Instrumentation Technology program is conducted.

Explanatory Comment

Acceptable Instrumentation Technology program outcomes (enrollment, graduation, and placement levels) are identified in the Evaluation, Planning, and Budgeting (EPB) model.

Evaluative Criteria

Annual evaluation of Instrumentation Technology program enrollment, graduation, and placement statistics is conducted and documented by the administration and program faculty.

Instrumentation Technology program evaluation findings are compared with acceptable outcome levels designated for state evaluation requirements.

Factors contributing to the outcomes of the Instrumentation Technology program are identified and analyzed. Where enrollment, graduation, and/or placement levels are unacceptable, appropriate corrective action is taken.

Standard Number:
60/61-04-04

INSTRUMENTATION TECHNOLOGY

PROGRAM EVALUATION AND PLANNING
(Attrition Levels)

Standard Statement

An analysis of the attrition level of the Instrumentation Technology program is conducted and used in evaluating and improving the program.

Explanatory Comment

Attrition level is a measure of the number of students who withdraw from a program prior to completion of graduation requirements.

Attrition levels vary from one type of program to another depending on the nature of the program and the student population. The attrition level of the Instrumentation Technology program is compared with relevant, available national norms and other data.

Evaluative Criteria

Annual evaluation of the attrition level of the Instrumentation Technology program is conducted and documented by the program faculty.

Factors contributing to the attrition level are identified and analyzed, and appropriate corrective action is taken.

Standard Number:
60/61-04-05

INSTRUMENTATION TECHNOLOGY

PROGRAM EVALUATION AND PLANNING
(Student Performance)

Standard Statement

An evaluation of the Instrumentation Technology program is conducted based on student achievement levels.

Explanatory Comment

Achievement levels are evaluated on the basis of verified student performance related to academic knowledge, occupational/technical knowledge, and performance skills.

Student achievement levels for the Instrumentation Technology program are determined on the basis of student performance data gathered from tests which are locally developed and conducted during each program of study.

Evaluative Criteria

Annual evaluation of Instrumentation Technology program student achievement levels is conducted and documented by the administration and program faculty.

Factors contributing to student achievement levels are identified and analyzed. Where achievement is low, corrective action is taken to improve the program.

Standard Number:
60/61-05-01

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Course Content)

Standard Statement

The essential content of each Instrumentation Technology course is consistent statewide for courses having the same course identification code.

Explanatory Comment

Course content is defined in terms of competency areas taught. The program-specific standards of the Georgia Board of Technical and Adult Education detail the essential competency areas for each course identification code.

Evaluative Criteria

The content of each Instrumentation Technology course having a given course identification code includes, but is not limited to, essential competency areas identified for that course identification code.

Competency areas included in the Instrumentation Technology course content reflect advances in the subject area and occupational field and respond to student, community, and employment market needs.

The overall content of each Instrumentation Technology course is consistent with established program goals and objectives.

Standard Number:
60/61-05-02

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Course Objectives)

Standard Statement

Each Instrumentation Technology program course is constructed on the basis of course objectives.

Explanatory Comment

Course objectives are desired student performance outcomes stated in measurable performance terms.

The Instrumentation Technology program faculty coordinates the planning of course objectives, outlines, and syllabi in an effort to facilitate program efficiency and consistency.

Evaluative Criteria

The objectives of each Instrumentation Technology course are derived from established program objectives.

Instrumentation Technology course outlines and lesson plans are based on course objectives.

Standard Number:
60/61-05-03

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Course Instruction)

Standard Statement

Suitable instructional techniques and resources facilitate the fulfillment of Instrumentation Technology course objectives.

Explanatory Comment

A wide variety of instructional techniques and resources are used to direct student learning experiences.

Evaluative Criteria

Course outlines, syllabi, and group or individual lesson preparations serve to organize instruction in each Instrumentation Technology classroom and laboratory.

Instructional materials such as competency tests, text books, instruction sheets, audiovisuals, and computer programs are utilized to meet Instrumentation Technology program goals and objectives and enhance instructional effectiveness.

Teaching methods, materials, and procedures make provisions for individual differences, needs, and capabilities. Opportunities for remediation are provided to students as needed.

Student learning experiences include theoretical instruction and practical application of knowledge. The ratio of theoretical to practical instruction depends on the nature of program competencies.

Student progress is systematically monitored, evaluated, and recorded by the Instrumentation Technology program faculty as part of the instructional process.

Desirable employability skills are integrated into Instrumentation Technology course instruction and are modeled by the instructor.

Academic skills are integrated into Instrumentation Technology course instruction and are modeled by the instructor.

Standard Number:
60/61-05-03

INSTRUMENTATION TECHNOLOGY

A syllabus which outlines course objectives, requirements, content, and evaluation techniques is made available to students enrolled in each Instrumentation Technology course.

Instructional methods are evaluated routinely, and evidence of improvement is collected and documented by the Instrumentation Technology program faculty.

Standard Number:
60/61-05-04

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Occupation-Based Instruction)

Standard Statement

The Instrumentation Technology program offers effective occupation-based instructional delivery where appropriate.

Explanatory Comment

Occupation-based instructional delivery systems include educational work experiences, internships, practicums, and other specialized and/or innovative learning arrangements.

Diploma/degree programs that require internships, work experience arrangements, and/or other occupation-based instructional experiences do so on the basis of designated essential competency areas and courses for the given program.

Evaluative Criteria

Any internship, on-the-job training arrangement, or other educational work experience that is an Instrumentation Technology program requirement or elective is:

a) listed as a course having a course identification code;
b) assigned course credit and required tuition;
c) defined by the same requirements for statewide course title, essential course description, and essential competency areas as any other diploma/degree program course;
d) controlled and supervised by the institution, Instrumentation Technology program faculty, and/or the person designated to coordinate work experience courses; and
e) managed through the use of prescribed individual training plans that detail required student learning and performance objectives and appropriate agreements between institutions and work experience supervisors.

Standard Number:
60/61-05-05

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Evaluation of Students)

Standard Statement

A system for evaluation of students is developed and implemented by the Instrumentation Technology program faculty.

Explanatory Comment

Evaluation of students is based on tests, observations, records, interviews, homework, projects, and/or other evidence of student performance.

Evaluative Criteria

The Instrumentation Technology program system for evaluation of students is consistent with institutional grading policies.

The faculty of the Instrumentation Technology program develops, implements, and disseminates a written system for evaluation of students.

The Instrumentation Technology program system for evaluation of students reflects the philosophy, purpose, goals, and objectives of the program.

The Instrumentation Technology program system for evaluation of students requires use of competency-based measures of student performance.

The Instrumentation Technology program system for evaluation of students requires use of both formative and summative evaluation.

The Instrumentation Technology program system for evaluation of students includes evaluation and documentation of student achievement in both course specific knowledge and practical application.

The Instrumentation Technology program system for evaluation of students includes evaluation and documentation of student achievement in the cognitive, affective, and psychomotor domains.

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology program system for evaluation of students is reviewed annually and revised, as necessary.

Standard Number:
60/61-05-06

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Grading System)

Standard Statement

The Instrumentation Technology program implements statewide grading standards.

Explanatory Comment

Program grading systems vary in detail but are consistent regarding major principles.

Evaluative Criteria

The faculty of the Instrumentation Technology program develops, implements, and disseminates a written grading system that incorporates statewide grading standards.

The Instrumentation Technology program grading system is disseminated to students by the time of entry into the program and establishes the criteria for passing, failing, and progression in the program.

The grading system reflects the objectives of the Instrumentation Technology program.

The grading system of the Instrumentation Technology program is used to promote student awareness of learning progress.

The grading system of the Instrumentation Technology program bases grades in occupational courses on documented measures of student knowledge, practical application of knowledge, and employability skills.

The grading system of the Instrumentation Technology program establishes passing grades that document student achievement of course competencies at levels acceptable for job entry.

The grading system of the Instrumentation Technology program requires use of a grading scale whereby 90 to 100% is an A, 80 to 89% is a B, 70 to 79% is a C, 65 to 69% is a D, and 0 to 64% is an F.

INSTRUMENTATION TECHNOLOGY

The grading system of the Instrumentation Technology program recommends the minimum course grade of C required for progress from specified courses to more advanced courses.

The grading system of the Instrumentation Technology program is evaluated annually by the program faculty and revised, as needed.

Standard Number:
60/61-05-07

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Laboratory Management)

Standard Statement

A system for instructional laboratory management is developed and implemented by the faculty of the Instrumentation Technology program.

Explanatory Comment

An established laboratory management system facilitates productive instructional laboratory operation.

Evaluative Criteria

The faculty of the Instrumentation Technology program develops and implements a written laboratory management system.

The laboratory management system is disseminated to Instrumentation Technology program students and faculty.

Institutional policies regarding safety, liability, and laboratory operation are reflected in the Instrumentation Technology program laboratory management procedure.

The Instrumentation Technology program laboratory management system is consistent with the goals and objectives of the program.

The Instrumentation Technology program laboratory management system maximizes the instructional usefulness of student laboratory experiences. The laboratory management system is designed to meet student needs in learning program competencies.

The Instrumentation Technology program laboratory management system complies with and stresses safety practices, requires that safety instruction precede laboratory instruction, and establishes required safety tests.

The Instrumentation Technology program laboratory management system is developed using input from program faculty, advisory committee members, and, when possible, students.

The laboratory management system is evaluated annually and revised, as needed.

Standard Number:
60/61-05-09

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Equipment, Supplies, and Materials)

Standard Statement

The furnishings, equipment, supplies, and materials for the Instrumentation Technology program are sufficient, appropriate, and adequately maintained to support safe and effective instruction.

Explanatory Comment

Program equipment, supplies, and materials include items used in a given occupation and items used in the delivery of instruction.

Evaluative Criteria

Current and adequately maintained furnishings, equipment, supplies, and materials are available to meet the instructional goals and performance objectives of the Instrumentation Technology program.

Students in the Instrumentation Technology program are helped to develop transferable occupational skills by using instructional equipment, tools, materials, and supplies that are comparable to those currently used in the occupational field. Tools and equipment reflect industry quality standards.

The furnishings, equipment, supplies, and materials used in the Instrumentation Technology program meet or exceed applicable local, state, and federal health and safety standards.

The Instrumentation Technology program makes provisions to ensure that all health and safety equipment, machine guards, fixtures, materials, and supplies required by local codes, state law, and professional practice are available and maintained in working order.

The Instrumentation Technology program requires that applicable personal safety devices, equipment, and supplies are available, utilized, and maintained in working order.

First aid supplies appropriate for the Instrumentation Technology program are available throughout each program area.

INSTRUMENTATION TECHNOLOGY

Instrumentation Technology program equipment, supplies, and materials are installed, color coded, controlled, ventilated, and/or stored in accordance with applicable health and safety codes.

The Instrumentation Technology program implements an equipment, materials, and supplies management system that delineates proper procedures for purchasing, maintaining, locating, storing, inventorying, securing, distributing, repairing, replacing, and safely using instructional items.

The Instrumentation Technology program utilizes its advisory committee and other inputs in implementing annual evaluation and planning procedures to maintain or improve the adequacy, safety, and management of equipment, materials, and supplies.

Standard Number:
60/61-05-10

INSTRUMENTATION TECHNOLOGY

INSTRUCTIONAL PROGRAM
(Physical Facility)

Standard Statement

The Instrumentation Technology program is provided with adequate and appropriate facilities.

Explanatory Comment

The facilities for the Instrumentation Technology program vary depending on enrollments, learning activities involved, instructional equipment used, indoor and/or outdoor instruction involved, and other factors.

Evaluative Criteria

Space allocations for the Instrumentation Technology program are appropriate for the number of students enrolled and the type of instructional activity involved.

The physical facilities for the Instrumentation Technology program are designed to facilitate instructional delivery, allow program flexibility, accommodate instructional management, protect students and staff against safety hazards, protect equipment from loss or damage, provide accessibility to all students, and create a positive atmosphere for effective learning.

The physical facilities for the Instrumentation Technology program are arranged to separate noise-producing activities from those that require a quiet environment, to expedite student traffic flow, and to prevent disruption of instruction.

Water, electricity, and other utilities are safely and conveniently provided to the Instrumentation Technology program on the basis of instructional needs.

The Instrumentation Technology program is provided with lighting, heating, cooling, ventilation, and any specialized control systems needed to maintain healthy and safe working conditions and meet instructional requirements.

The physical facilities for the Instrumentation Technology program include classrooms, laboratories, and/or other specialized learning areas needed to meet instructional requirements.

Standard Number:
60/61-05-10

INSTRUMENTATION TECHNOLOGY

The institution provides adequate and appropriate non-instructional facilities including offices, restrooms, storage areas, and any other specialized areas needed to meet Instrumentation Technology program needs.

The facilities for the Instrumentation Technology program are maintained regularly and operated effectively and cost efficiently.

The Instrumentation Technology program faculty and advisory committee conduct an annual facility evaluation which contributes to the overall institutional facility review process.

Standard Number:
60/61-06-01

INSTRUMENTATION TECHNOLOGY

ACADEMIC SKILLS
(Academic Requirements)

Standard Statement

Academic achievement standards are established for the Instrumentation Technology program.

Explanatory Comment

Examples of academic skills include, but are not limited to, communication skills, reading comprehension skills, and computation skills.

Developmental studies assists students to improve skills such as language usage, reading, and computation prior to regular program admission.

Evaluative Criteria

The Instrumentation Technology program utilizes academic achievement standards for admission that reflect skills necessary for successful participation in the instructional program.

The institution offers developmental studies to students who do not meet academic achievement standards for program admission.

The institution offers a required general core curriculum consisting of academic instruction.

Opportunities for academic remediation are provided to students while enrolled in Instrumentation Technology program courses.

The Instrumentation Technology program utilizes academic evaluation achievement standards that reflect skills necessary for successful performance on the job.

Where a state-approved evaluation has not been established, evaluation of essential academic skills is conducted according to standards developed by the local program faculty.

Standard Number:
60/61-07-01

INSTRUMENTATION TECHNOLOGY

EMPLOYABILITY SKILLS
(Job Acquisition)

Standard Statement

Job acquisition competency areas are integrated into the curriculum of the Instrumentation Technology program.

Explanatory Comment

Employability skills refer to the basic academic, interpersonal, reasoning, and problem solving skills that, when transferred to the occupational setting, facilitate job acquisition, retention, and advancement.

Job acquisition competency areas consist of essential employability skills that directly influence the ability to obtain employment.

Evaluative Criteria

The faculty of the Instrumentation Technology program ensures that job acquisition competency areas are included in the curriculum.

Job acquisition competency areas include, but are not limited to, the following:
a) job search;
b) job application and resume preparation;
c) interviewing; and
d) job marketing.

The faculty of the Instrumentation Technology program utilizes job follow-up data, current research, and the expertise of the program advisory committee to evaluate and update the delivery of program employability skills training.

The faculty of the Instrumentation Technology program assists in providing student employment information to the job placement office.

The faculty of the Instrumentation Technology program encourages and guides students in preparing occupationally appropriate job acquisition materials such as applications, resumes, letters of reference, work histories, course descriptions or outlines, transcripts, and other related information.

INSTRUMENTATION TECHNOLOGY

The media collection includes multi-media employability information appropriate for classroom and individual student use.

Standard Number:
60/61-07-02

INSTRUMENTATION TECHNOLOGY

EMPLOYABILITY SKILLS
(Job Retention and Advancement)

Standard Statement

Job retention and advancement competency areas are integrated into the curriculum of the Instrumentation Technology program.

Explanatory Comment

Employability skills refer to the basic academic, interpersonal, reasoning, and problem solving skills that, when transferred to the occupational setting, facilitate job acquisition, retention, and advancement.

Job retention and advancement competency areas consist of desirable job performance skills and attitudes that directly influence the ability to maintain employment or achieve an improved employment role.

Evaluative Criteria

The faculty of the Instrumentation Technology program ensures that job retention and advancement competency areas are included in the curriculum.

The Instrumentation Technology program curriculum stresses professional job performance required for maintaining and advancing in a job including, but not limited to, demonstration of:

a) knowledge of occupational and academic skills;
b) quality work standards;
c) productivity;
d) communication skills;
e) punctuality;
f) problem solving skills;
g) interpersonal skills;
h) confidentiality; and
i) knowledge of the career ladder.

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology program curriculum stresses professional attitudes required for maintaining and advancing in a job including, but not limited to, demonstration of:

a) cooperativeness;
b) pleasantness;
c) responsibility;
d) self-control;
e) enthusiasm;
f) flexibility;
g) helpfulness;
h) loyalty; and
i) willingness to learn.

The Instrumentation Technology program faculty utilizes job follow-up data, current research, and the expertise of the program advisory committee to evaluate and update the delivery of program employability skills training.

The Instrumentation Technology program faculty assists in providing student employment information to the job placement office.

Standard Number:
60/61-08-01

INSTRUMENTATION TECHNOLOGY

STAFF
(Faculty Qualifications and Responsibilities)

Standard Statement

Qualified faculty are responsible for carrying out the purpose, goals, and objectives of the Instrumentation Technology program.

Explanatory Comment

Essential faculty qualifications and responsibilities are detailed in the Certification Manual and the program-specific standards established by the Georgia Board of Technical and Adult Education.

Evaluative Criteria

The qualifications for each Instrumentation Technology program part-time or full-time faculty member meet the requirements specified in the Certification Manual of the Georgia Board of Technical and Adult Education, as appropriate, and the requirements of the designated accrediting agency(ies).

The responsibilities of each Instrumentation Technology program part-time or full-time faculty member are in compliance with the requirements specified in the Georgia Board of Technical and Adult Education Policy Manual and are in conformance with the requirements of the designated accrediting agency(ies).

The faculty of the Instrumentation Technology program use annual staff development opportunities to assure achievement of occupational and instructional competency.

Standard Number:
60/61-09-01

INSTRUMENTATION TECHNOLOGY

ADVISORY COMMITTEE
(Function)

Standard Statement

A program advisory committee provides expert support for the Instrumentation Technology program.

Explanatory Comment

A program advisory committee is established to promote interaction between the Instrumentation Technology program and businesses and industries served by the program.

Faculty use the expertise of the advisory committee to improve program content and operation.

Evaluative Criteria

The Instrumentation Technology program advisory committee assists with developing short-range and long-range plans.

The Instrumentation Technology program advisory committee provides advice regarding curriculum content to ensure that courses relate to present and future employment needs.

The Instrumentation Technology program advisory committee makes suggestions regarding the modification, addition, or deletion of course offerings.

The Instrumentation Technology program advisory committee supports the program through public relations activities.

The Instrumentation Technology program advisory committee makes recommendations regarding the design and use of physical facilities.

The Instrumentation Technology program advisory committee makes recommendations regarding the selection and maintenance of equipment.

The Instrumentation Technology program advisory committee assists in evaluation of program effectiveness, job development, job placement, program promotion, evaluation in relation to standards, program advocacy, and industrial support of the program.

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology program advisory committee submits its recommendations regarding program related changes to the appropriate state-level technical committee for review on an annual basis.

The Instrumentation Technology program faculty provides documented evidence that program advisory committee recommendations are considered and that specific action is taken on each recommendation.

Standard Number:
60/61-09-02

INSTRUMENTATION TECHNOLOGY

ADVISORY COMMITTEE
(Membership)

Standard Statement

The membership of the Instrumentation Technology program advisory committee is representative of the community and employment market served by the program.

Explanatory Comment

The Instrumentation Technology program advisory committee is composed primarily of persons in the industry served by the program and includes persons within the community and employment market who positively impact the program.

Evaluative Criteria

The faculty of the Instrumentation Technology program, in cooperation with the administration of the institution, selects the advisory committee.

The Instrumentation Technology program advisory committee includes a cross-section of representatives from program-related businesses and industries.

The Instrumentation Technology program advisory committee includes program-related business and industry representatives who have varying occupational positions.

The Instrumentation Technology program advisory committee includes faculty as ex officio members.

The Instrumentation Technology program advisory committee is composed of a minimum of five members.

The Instrumentation Technology program advisory committee maintains a base of experienced members while acquiring new members.

The Instrumentation Technology program advisory committee members are recognized for their dedication and effort to improve the quality of education.

Standard Number:
60/61-09-03

INSTRUMENTATION TECHNOLOGY

ADVISORY COMMITTEE
(Meetings)

Standard Statement

Instrumentation Technology program advisory committee meetings have a planned program of work.

Explanatory Comment

Regularly scheduled formal advisory committee meetings focus on planning, developing, implementing, and evaluating the Instrumentation Technology programs.

Evaluative Criteria

The Instrumentation Technology program advisory committee has an annual program of work on file.

The Instrumentation Technology program advisory committee meets a minimum of two times annually on a scheduled basis.

The Instrumentation Technology program advisory committee elects officers, including a chairperson and a secretary.

The Instrumentation Technology program advisory committee follows an agenda which is distributed to members prior to each meeting.

The chairperson of the Instrumentation Technology program advisory committee assists program faculty in developing the agenda for each meeting.

The Instrumentation Technology program advisory committee maintains minutes indicating date, agenda, members present, and recommendations.

Minutes are distributed to each Instrumentation Technology program advisory committee member prior to each meeting.

The Instrumentation Technology program advisory committee maintains an open file of minutes and other necessary documents for a minimum of three years.

Standard Number:
60/61-09-03

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology program advisory committee members are invited to make periodic classroom visits to the institution.

The Instrumentation Technology program advisory committee has a quorum present to conduct business.

Standard Number:
60/61-10-01

INSTRUMENTATION TECHNOLOGY

SPECIAL NEEDS
(Commitment)

Standard Statement

The Instrumentation Technology program is committed to providing technical education to special needs students.

Explanatory Comment

Special needs students are those who are academically and/or economically disadvantaged, are physically and/or mentally handicapped, or are national origin minority students with limited English language skills.

The special needs requirements of the Georgia Board of Technical and Adult Education meet or exceed all relevant local, state, and federal legislation.

Special needs legislation includes, but is not limited to, mandates for auxiliary aids to students, removal of architectural and equipment barriers, and non-restrictive career counseling.

Evaluative Criteria

Special needs policies and operational procedures that comply with current local, state, and federal special needs legislation are implemented in the Instrumentation Technology program.

Students who are academically and/or economically disadvantaged are provided special services and assistance to enable them to succeed in the Instrumentation Technology program.

Students who have physical and/or mental impairments are provided special services and assistance to enable them to succeed in the Instrumentation Technology program.

Students who are national origin minority students with limited English language skills are provided special services and assistance to enable them to succeed in the Instrumentation Technology program.

Standard Number:
60/61-11-01

INSTRUMENTATION TECHNOLOGY

EQUITY
(Commitment)

Standard Statement

The Instrumentation Technology program affords equal access and opportunities to all qualified students and staff.

Explanatory Comment

Equal access and equal opportunity refer to the prohibition of discrimination on the basis of race, color, national origin, religion, sex, age, or handicapping condition in educational programs, activities, and employment.

The equal access and equal opportunity requirements of the Georgia Board of Technical and Adult Education meet or exceed all relevant state and federal legislation.

Equal access and equal opportunity legislation includes, but is not limited to, mandates for: equitable admissions practices, counseling, employment, grievance procedures, and leave; nondiscriminatory recruitment and promotional materials; and public notification of nondiscrimination.

Evaluative Criteria

The nondiscrimination commitment of the Instrumentation Technology program complies with current Georgia Board of Technical and Adult Education policy and state and federal law.

A written institutional policy that ensures equal access to all qualified students who can safely benefit from instructional services regardless of race, color, national origin, religion, sex, age, or handicapping condition is implemented in the Instrumentation Technology program.

Standard Number:
60/61-12-01

INSTRUMENTATION TECHNOLOGY

HEALTH AND SAFETY
(Commitment)

Standard Statement

The Instrumentation Technology program provides a safe and healthy environment for students and staff.

Explanatory Comment

References for proper health and safety conditions, equipment, practices, and procedures are available in Georgia Board of Technical and Adult Education policy and local, state, and federal law. Emergency and disaster plans, accident reports, and fire drill procedures are outlined in information from the State Fire Marshall's Office, the Civil Defense Division, and the Georgia Department of Human Resources.

Health and safety facility and equipment provisions required by the Georgia Board of Technical and Adult Education meet or exceed appropriate local, state, and federal law.

Evaluative Criteria

The physical facility, furnishings, equipment, supplies, and practices of the Instrumentation Technology program meet or exceed appropriate local, state, and federal health and safety standards.

Proper health and safety practices are developed, implemented, and integrated into the Instrumentation Technology program.

The Georgia Board of Technical and Adult Education does not discriminate on the basis of age, sex, race, color, religion, national origin, or handicap in its educational programs, activities, or employment policies.